STURGEON LAKE-PUSKWASKAU EAST

Sub-Regional Integrated Resource Plan

Alberta

STURGEON LAKE - PUSKWASKAU EAST

SUB-REGIONAL
INTEGRATED RESOURCE PLAN

Approved by the Economic Planning Committee
of Cabinet on August 25th, 1987

1987
Edmonton

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PREFACE

This planning document was prepared by involved government agencies and public consultants in recognition of the need for improved management of Alberta's lands and resources. It applies only to public lands within the Sturgeon Lake-Puskwaskau East planning area, and not to any private or federal lands.

The plan presents the Government of Alberta's resource management policy for the public lands and resources within the area. It is intended to be a guide to resource managers, industry and publics having responsibilities or interests in the area rather than a regulatory mechanism. Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The plan is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. The provincial government is committed to serving Albertans; should a proposal not be in keeping with the provisions of the plan, every means will be taken to explore alternative means for accommodating the proposal in a more appropriate location, either in this planning area or on other public lands. The rejection of any proposals will only be done in writing by the minister or his designate.

A detailed outline for implementation will be provided for this sub-regional plan in order to identify the necessary implementation actions and roles. This implementation outline will also provide for the continuing review of the plan so that it may accommodate changing needs and situations. Wherever possible, the private sector will be provided the opportunity to be actively involved in the operational delivery of the plan.

Implementation of the plan is to be subject to the normal budgetary approval process with overall priorities to be established with consideration of opportunities in other planning areas and areas currently outside the planning process.

While the plan identifies resource potentials and opportunities, the realization of these may require the dedication of major amounts of public funds. The plan will be used on the understanding that any actions required for implementation will only be undertaken as budgetary approvals are given in the normal way. The private sector will be given the first opportunity to provide any development required.

This plan has no legal status and is subject to revisions or review at the discretion of the Minister of Forestry, Lands and Wildlife.

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1. INTRODUCTION

Descriptive Synopsis

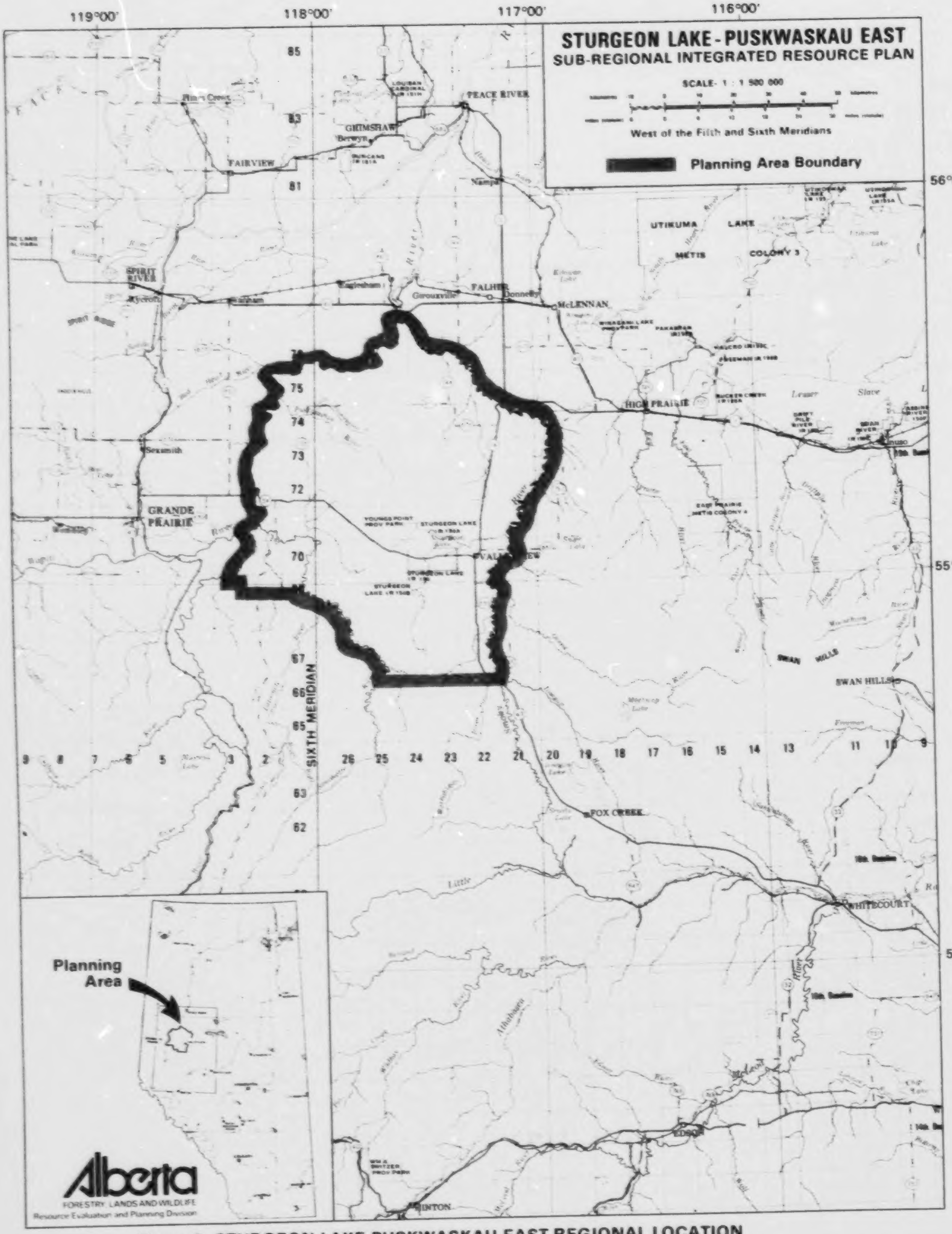
The Sturgeon Lake-Puskwaskau East planning area covers approximately 2 250 square miles (5 830 km^2) to the east of Grande Prairie (Figure 1). The boundaries of the area are primarily geographical: the Smoky, Little Smoky and Simonette rivers. A legal boundary is followed through a portion of Township 69 and along Township 67 (Figure 2).

Most of the area is blanketed with morainal and lacustrine deposits supporting a mixedwood boreal forest on uncleared lands. Agricultural uses, mainly till cropping, predominate over about 43 per cent of the planning area. Almost a township of land is contained within the three parcels of land comprising the Indian reserve of the Sturgeon Lake band. Remaining public lands sustain multiple renewable and non-renewable resource uses with an emphasis on sustained-yield timber harvesting and watershed protection. Riparian lands along the Smoky River and an upland area of small lakes and wetlands surrounding the headwaters of the Puskwaskau River support one of the largest per unit area densities of moose in the province. The centrally located Sturgeon Lake is a major focus of recreation activity in the Grande Prairie region.

Planning Background

The history of sub-regional planning within the present planning area dates from the early 1970s when both the Sturgeon Lake and Puskwaskau East areas were studied by the former Land Use Assignment Committee. In 1978 a lake management plan for Sturgeon Lake was produced by the Peace River Regional Planning Commission (Peace River Regional Planning Commission, 1978). That plan is now dated and an area structure plan has been prepared for the lake (South Peace Regional Planning Commission, 1984, 1985a, 1985b). Additionally, the new South Peace Regional Planning Commission has produced a regional plan (1985c) and is currently in the process of producing a General Municipal Plan for ID 16. Also, Alberta Environment has been conducting a series of studies which will culminate in a water management plan for Sturgeon Lake.

The present planning exercise dates from March, 1978 when, following representations on resource management concerns by Alberta Agriculture, Alberta Energy and Natural Resources and Alberta Environment, an interdepartmental Assistant Deputy Ministers committee identified the area as a priority for the development of a sub-regional integrated resource plan.



119°00'
118°00'
117°00'
116°00'
56°00'
55°00'
54°00'
STURGEON LAKE - PUSKWASKAU EAST
SUB-REGIONAL INTEGRATED RESOURCE PLAN
SCALE- 1 : 1 500 000
West of the Fifth and Sixth Meridians
Planning Area Boundary
PEACE RIVER
GRIMSHAW
Berwyn
FAIRVIEW
Nampa
SPIRIT RIVER
Rycroft
Girouxville
FALHER
Donnelly
McLENNAN
UTIKUMA LAKE METIS COLONY 3
HIGH PRAIRIE
Lesser Slave
Sexsmith
GRANDE PRAIRIE
EAST PRAIRIE METIS COLONY 4
YOUNGS POINT PROV PARK
STURGEON LAKE
VALLEYVIEW
SWAN HILLS
SIXTH MERIDIAN
FOX CREEK
WHITECOURT
EDSON
HINTON
Little
Athabasca
85
83
81
75
74
73
72
70
67
66
65
63
62
9
8
7
6
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3
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9
Planning Area
Alberta
FORESTRY, LANDS AND WILDLIFE
Resource Evaluation and Planning Division

Figure 1 STURGEON LAKE PUSKWASKAU EAST REGIONAL LOCATION

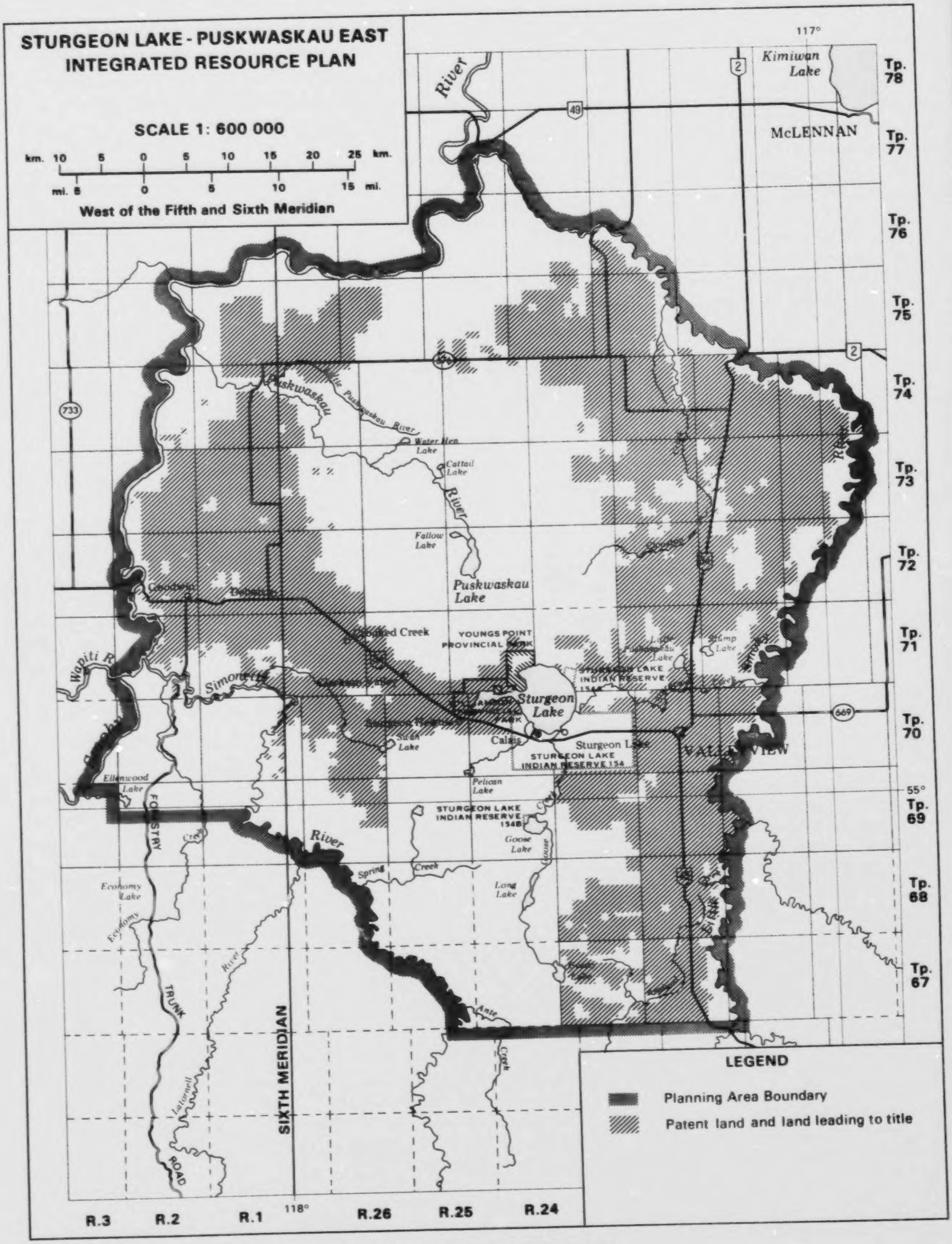
STURGEON LAKE - PUSKWASKAU EAST
INTEGRATED RESOURCE PLAN
SCALE 1: 600 000
km. 10 5 0 5 10 15 20 25 km.
mi. 5 0 5 10 15 mi.
West of the Fifth and Sixth Meridian
LEGEND
Planning Area Boundary
Patent land and land leading to title
117°
118°
55°
Tp. 78
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
R.3
R.2
R.1
R.26
R.25
R.24
SIXTH MERIDIAN
McLENNAN
VALLEYVIEW
Kimiwan Lake
River
Puskwaskau
Puskwaskau River
Water Hen Lake
Cattail Lake
Fallow Lake
Puskwaskau Lake
YOUNGS POINT PROVINCIAL PARK
Sturgeon Lake
STURGEON LAKE INDIAN RESERVE 154A
STURGEON LAKE INDIAN RESERVE 154
STURGEON LAKE INDIAN RESERVE 154B
Calais
Sturgeon Heights
Swan Lake
Pelican Lake
Goose Lake
Long Lake
Little Puskwaskau Lake
Stump Lake
Crooked Creek
Goodwin
Debolt
Wapiti R.
Smoky
Simonette
Ellenwood Lake
Economy Lake
FORESTRY TRUNK ROAD
Latornell
Spring Creek
Creek
Ante Creek
Goose
2
49
733
669

Figure 2. STURGEON LAKE-PUSKWASKAU EAST PLANNING AREA

Three major planning events have subsequently occurred. First, in July, 1978 the Resource Integration Committee (RIC) directed the planning team to adopt a two-staged planning approach with initial focus on the Spring Creek Area. This plan was completed in April, 1980 (Alberta ENR, 1980). Secondly, in June, 1981 the RIC approved the Terms of Reference (Alberta ENR, 1981a) for the larger Sturgeon Lake-Puskwaskau East plan and extended the planning area by moving the eastern boundary from Rg 23 W5M to the Little Smoky River. Thirdly, in April, 1984, the RIC approved the Resource Management Policy (RMP) (Alberta ENR, 1984a) for the planning area. Public reviews were held at this stage of the planning process (Alberta ENR, 1984b, 1984c).

The RMP contained the following elements:

- a discussion of planning philosophy and planning principles, including the identification of guidelines upon which all provisions of the plan are predicated;
- a listing of broad resource management objectives for each of the identified resource sectors, which are applicable to the entire planning area; and
- a land allocation scheme, delineated both by means of zoning designations and the identification of special areas, which allocates and provides management direction for the various resources of the planning area. This direction is based both on an assessment of present use, capability, potential use and demand, and modifications to draft documents resulting from both public input and review of the RMP by various committees.

The present document is a product of the design stage of the planning process and provides a more refined and detailed level of subregional direction than was contained in the RMP. In addition to containing the various elements of the RMP, the plan identifies broad planning units, called resource management areas (RMAs) and lists specific resource management objectives and guidelines by RMA for each of the identified resource sectors. RMAs and specific management objectives and guidelines are discussed in detail in Chapter 3, commencing on page 39.

Plan Purpose and Jurisdiction

The purpose of the plan is to promote the co-ordinated management of resources within the planning area. The plan attempts to do this by allocating the various resources of the area based on natural resource capabilities, provincial direction, and the requirements of both Provincial government agencies and the public. Direction for the use and management of resources is provided by means of the land allocation scheme, RMA intent statements, and general and specific objectives and guidelines.

Two major directed purposes are to make lands available for agricultural expansion and to address water-quality concerns in Sturgeon Lake by adopting appropriate measures in its watershed. The plan recommends that a considerable amount of land be relinquished by the Crown in order to meet the requirements of the local agricultural community. Lands within the Sturgeon Lake watershed will be managed for multiple uses consistent with the intent of preventing increased nutrient or sediment loadings into Sturgeon Lake.

The provisions of the plan apply to all provincial Crown lands and resources within the planning area. All resource management conducted by provincial government agencies shall conform to the plan. The plan has no legal status and does not supercede the legislated mandates of any agency. In addition to recommended procedures for review, the plan is subject to revisions or review at any time at the discretion of the Minister of Forestry, Lands and Wildlife.

The plan has no jurisdiction over patent lands, which are not subject to any of the policies, objectives or guidelines contained herein. Plans affecting private lands are the responsibility of the local municipal authorities (ID 16, MD 130 and the Town of Valleyview) and the South Peace Regional Planning Commission in accordance with the Alberta Planning Act (RSA, P9, 1983). Additionally, any private development or subdivision allowed by this plan would have to conform to any approved land-use plans of the appropriate municipal authority.

2. SUB-REGIONAL RESOURCE MANAGEMENT DIRECTION

Integrated Resource Management -- Planning Implications

The Alberta government is responsible for management of the provincial resource base and works to optimize the use of all natural resources in order to provide maximum benefits for Albertans, now and in the future. The government is committed to an integrated approach to resource management which recognizes that management and use of one resource may affect management and use of another resource. Integrated resource management (IRM) attempts to reduce or resolve any negative interactions and enhance or promote positive interactions between resource management and use activities. Co-operation, communication, co-ordination and comprehensive consideration of resource values are fundamental aspects of the concept of IRM.

Integrated resource planning involves a decision-making process and is an applied aspect of IRM which provides direction for the co-ordinated allocation, use and management of resources. In the process of allocating land for competing resource demands, the planning team has recognized the legitimacy of all resource uses and has adopted the philosophy that within the planning area as a whole, it is not desirable to emphasize any single resource use to the exclusion of other resource sectors.

In discussing the theme of integration and its relationship to resource planning, the planning team formulated three general guidelines which embody principles either implicit in a providing focus to the concept of integrated resource management. These general guidelines are interrelated and collectively constitute the "base point" from which all provisions and recommendations developed by the planning team originate. The guidelines are as follows:

1. The encouragement of co-operation and co-ordination between all agencies or other bodies whose interests affect the use and development of the various resources of the planning area.

2. The minimization of any negative impacts which the use or development of any one resource may have upon other resources.

3. The promotion of high environmental quality by minimizing any negative impacts which the use or development of any resources may have upon the natural environment.

Broad Resource Management Objectives and Guidelines

The management objectives and guidelines which follow are applicable to the entire planning area. They are listed alphabetically by identified resource sector. They include objectives identified in the RMP as well as objectives and guidelines formulated during the design stage which are generally applicable. The objectives and guidelines collectively constitute a general resource management strategy for the entire sub-region. Short introductory statements precede the management objectives and guidelines for each resource sector. These give a synopsis of the overall status of the resource in the sub-region, including its history and present and planned uses.

Agriculture

The focus of agricultural activity in the sub-region is on the production of livestock, cereal grains, oilseeds, forage and forage seeds. Cereal grains are grown for the purpose of cash crops; however, climatic conditions have proven to be marginal for reliable high-quality production on an annual basis over the long term.

Agricultural production is an important element of local economies. The town of Valleyview functions as the only major agricultural service centre in the planning area. A viable agricultural industry is vital to Valleyview and other smaller service centres such as DeBolt and Crooked Creek.

The identification of additional lands suitable for expanding the limited existing agricultural land base will tend to stimulate the regional economy.

The cattle business has contributed to the economy of the region since the days of the early settlers. The Peace River Stock Growers Association has stated that "the livestock industry is essential to development of agriculture in the Peace River Area." The cattle industry is still in the developmental stage in the planning area and operators are seeking new areas capable of forage production. Much of this new area must come from Crown lands.

The livestock industry requires long-term access to a specified land base in order that it might plan its operations with confidence. This gives the operator a greater assurance of capitalizing on investments made for range improvements. It is through long-range planning and investment that better utilization will be realized on this finite land base.

Management Objectives

1. To meet a portion of the demand for the permanent agricultural land expansion by making available lands with capability for agricultural production.

2. To identify and make available areas capable of supporting grazing and/or forage production so that future grazing expansion can be directed to the most appropriate sites.

3. To maintain the level of existing range use and evaluate all existing leases and licenses for range enhancement possibilities.

4. To ensure that the quality and quantity of the range is maintained in good condition over time.

5. To ensure range utilization is consistent both with water-quality objectives and with the maintenance of viable fish populations.

Management Guidelines

1. Suitable till cropping and grazing lands will be identified and made available to the farming community.

2. Range management practices will be co-ordinated, utilizing input from existing Forestry, Lands and Wildlife (FLW) programs and inputs from other agencies.

3. The standard of range management on all existing grazing dispositions will be upgraded over time through the development of proper management plans with the lessee or licensee.

4. Applications for Crown lands showing potential for rangeland use should be allocated in the White Area before the Green Area.

5. Improved grazing programs will be in accordance with Public Lands Improved Grazing Guidelines and will be subject to restrictions or modifications determined necessary by detailed operational planning to mitigate impacts on wildlife and timber resources.

6. Livestock will not be permitted to water randomly in watersheds supporting significant fisheries. Specified watering sites or dugouts must be used. Access to specified creeks must be fenced off and include adequate buffer strips.

7. In order to provide access to Crown lands, no dispositions that would limit public access on road allowances will be permitted.

Ecological Resources

Management Objective

To provide both representative and unique areas of the natural environment with significance for recreational, scientific, ecological, or educational purposes.

Fisheries

Sturgeon Lake, historically, has been the focal point of the planning area. Natives fish in Sturgeon Lake and to a lesser extent in Goose Creek as well. Commercial fishing on Sturgeon Lake began in the early 1900s and has continued as an annual event to the present day. The lake supports a very productive walleye, pike and, more recently, lake whitefish sport-fishery that has grown rapidly in popularity in recent years. Today Sturgeon Lake is the most significant recreation lake in the Peace River region, mainly from the point of view of supplying a varied mix of recreational opportunities strongly relying on the fish resource.

The fisheries potential of most lakes in the planning area is limited by insufficient water depth and excessive plant life. Opportunities for fisheries enhancement are scarce and will necessitate expensive management programs.

The large rivers are the basis of the river-stream fishery resource. They support northern pike, walleye, goldeye, arctic grayling, Rocky Mountain whitefish and bull trout populations. Several of these species migrate lengthy distances in these rivers and up tributary streams to overwintering and spawning sites. Angling is difficult in the large, fast-flowing, turbid waters and is usually confined to the mouths of tributaries. Other than at road crossings, public access to the major rivers is limited, largely because patent or leased lands border the river corridors throughout most of the planning area.

Intensified land use practices, and in particular those related to agriculture, have had impact on many of the watercourses. Siltation related to accelerated erosion and extreme high and low flows due to extensive land clearing are the most common forms of habitat degradation.

Management Objectives

1. To manage the aquatic resource to ensure that viable fish populations are maintained for recreation, subsistence and economic benefit.

2. To develop and maintain the amount, distribution and variety of recreational fishing opportunities.

3. To develop and maintain the habitat base necessary to support the fish resource demand.

4. To support and assist non-government organizations with fisheries protection and enhancement.

5. To maintain and provide access to the fishery resource.

Management Guidelines

1. Fisheries surveys will be conducted in priority areas in order to evaluate fish populations and habitat for developing management strategies to maintain, protect and enhance fisheries.
2. Regulations will be used to ensure that viable fish populations are protected and maintained.
3. Restrictions or modifications to resource exploration, developments or management activities will be required as necessary in order to ensure the maintenance of important fisheries habitat, and to mitigate potential impacts on the fisheries resource (see Agriculture, pages 8-9).
4. Programs such as access development, Buck for Wildlife, Fish and Game culture programs, and stocking will be used to maintain and enhance fishing opportunities.

Heritage

There has been little formal archaeological research undertaken in the planning area to date, consequently details of prehistoric occupation of the area are not well known at present. Archaeological survey work on Sturgeon Lake and along the Smoky River have resulted in the discovery of some 22 sites. These initial investigations suggest that the area has considerable potential for the discovery of additional sites, particularly along river systems and around lakes in the area (see Figure 3, p. 12). Some of these sites will undoubtedly prove to be of considerable significance to an understanding of the pre-history of northern Alberta. As these sites represent a non-renewable resource, virtually any type of activity requiring land surface disturbance can result in the permanent loss of part of the prehistoric record. Consequently, it is essential that development proposals be reviewed to ensure that such losses do not occur.

Indigenous peoples have lived in the planning area since prehistoric times. Beaver indians inhabited the area prior to the Cree. The Indian reserves of the Sturgeon Lake Band were established August 28, 1909. Three reserves (Nos. 154, 154A, 154B) comprise approximately 22 455 acres (9 091 ha) and are in close proximity to each other. Band members use adjacent Crown lands to pursue traditional activities such as hunting, gathering and fishing, but the degree and extent of that use is not known at this time. Languages spoken by the band members includes English and Cree. Population of the band was 895 on February 26, 1986. There may be additional people who qualify for band membership under Bill C31, the 1985 amendment to the Indian Act.

The Sturgeon Lake Band in conjunction with the Treaty and Aboriginal Rights Research (TARR) group has prepared a treaty entitlement

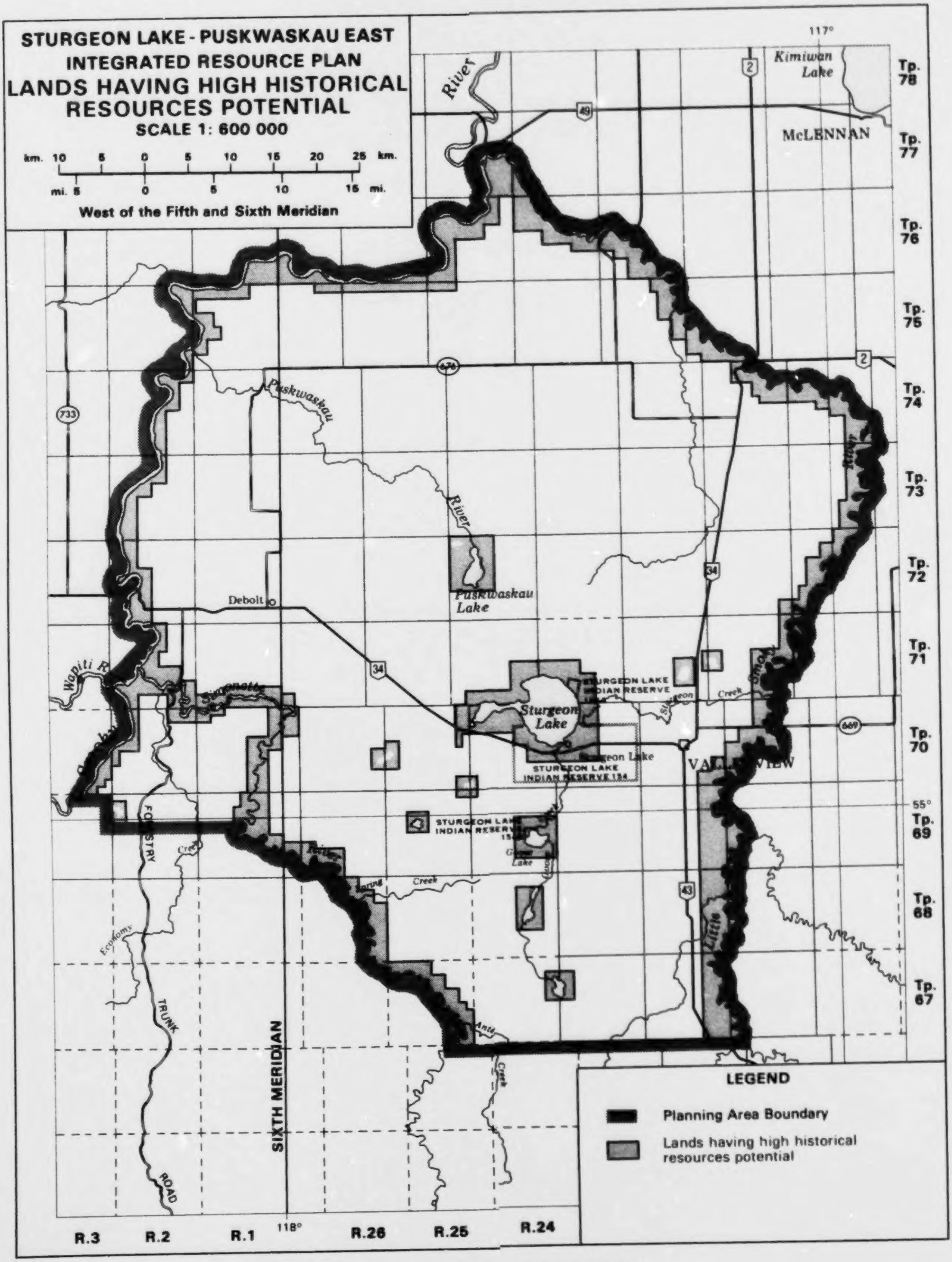
STURGEON LAKE - PUSKWASKAU EAST
INTEGRATED RESOURCE PLAN
LANDS HAVING HIGH HISTORICAL RESOURCES POTENTIAL
SCALE 1: 600 000
km. 10 5 0 5 10 15 20 25 km.
mi. 5 0 5 10 15 mi.
West of the Fifth and Sixth Meridian
LEGEND
Planning Area Boundary
Lands having high historical resources potential
117°
Kimiwan Lake
McLENNAN
River
Puskwaskau
River
Puskwaskau Lake
Debolt
Wapiti R.
Sturgeon Lake
STURGEON LAKE INDIAN RESERVE
STURGEON LAKE INDIAN RESERVE 154
STURGEON LAKE INDIAN RESERVE 154A
Sturgeon Lake
Sturgeon Creek
VALLEYVIEW
Smoky
Little
Economy
Creek
Creek
FORESTRY TRUNK ROAD
SIXTH MERIDIAN
55°
118°
2
49
676
733
34
43
669
Tp. 78
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
R.3
R.2
R.1
R.26
R.25
R.24

Figure 3 LANDS HAVING HIGH HISTORICAL RESOURCES POTENTIAL

claim for additional lands. The federal government has agreed that entitlement matters should be negotiated between the Sturgeon Lake band, Canada and Alberta.

Management Objectives

1. To protect historical resources (historic, prehistoric, paleontological) and to manage such resources for recreational, scientific or educational purposes.

2. To allow for the traditional uses of the members of the Sturgeon Lake Band.

Management Guidelines

1. Resource uses causing surface disturbance may require historical resource impact assessments before development occurs, as outlined in the Alberta Historical Resources Act (RSA, H8, 1980).

2. Culture will be referred on any development proposals affecting known palaeontological sites.

Minerals

The planning area has been extensively explored for petroleum and natural gas and large reserves have been discovered. Reserves of other mineral resources have not been established, although sub-bituminous coal seams of the Fox Creek and Simonette coal fields are found just a few kilometers south of the planning area, and the Peace River oil sands deposit extend to within 8.5 miles (14 km) of the northeast extremity of the planning area. The Peace River deposit contains Lower Cretaceous oil sands of the Bluesky and Gething horizons. Thin coal seams occur in the Lower Cretaceous Wapiti Formation which underlies most of the planning area.

Seven petroleum and natural gas fields occur entirely or mostly within the planning area: the Ante Creek North, Calais, Cornwall and Valleyview natural gas fields, and the Little Smoky, Sturgeon Lake and Sturgeon Lake South petroleum fields. The combined reserves of natural gas of the planning area are approximately 5 million m^3 of natural gas. Yearly production of petroleum and natural gas is approximately 600 000 m^3 and 100 million m^3 respectively from 120 oil wells and 10 gas wells (14 additional gas wells are capped). Three natural gas processing plants are in the planning area, one of which processes 23 000 tonnes a year of sulphur. One well just north of Sturgeon Lake contains 11 per cent hydrogen sulphide. The natural gas is produced mainly from the Lower Cretaceous Gething, Peace River and Cadotte formations, while nearly all the petroleum is found in Devonian D-3 reefs of the Leduc Formation.

Most of the petroleum and natural gas is Crown owned but does not underlie Crown lands: 74 per cent of the land area of all fields is patent or Indian land and 75 per cent of all wells are located on non-Crown lands. Seventy-seven per cent of the planning area's petroleum and natural gas rights are under disposition by oil companies, reflecting good potential. Most dispositions are on or nearby existing reserves, in other words concentrated on patent lands.

Management Objectives

1. To encourage the assessment and development of known mineral resources.
2. To encourage the exploration for mineral resources in previously unexplored areas and formations.

Recreation and Tourism

Sturgeon Lake is by far the greatest recreational attraction in the planning area. It is recognized as the best recreation lake in the Peace River Country. Activities centre around boating, fishing, camping and cottages. Houseboat tours are also available. It is a local/regional destination area visited by some 50 000 people annually, which is very significant considering that the population of the Peace Country is just over 100 000.

Tourism opportunities are generally associated with outdoor recreation activities and related services found within the planning area. Area communities such as Valleyview, DeBolt and Crooked Creek provide tourist services, facilities and attractions. Traffic bound for the Mackenzie and Alaska highways passes through the subregion.

A variety of extensive recreational opportunities exist throughout much of the Crown land in the planning area. Activities include hunting, fishing, boating, snowmobiling and cross-country skiing. With the exception of hunting and fishing, little utilization has been made of these opportunities to date. Little intensive recreational use occurs other than at Sturgeon Lake where camping and day-use facility development are provided both within Young's Point and Williamson provincial parks and also at the Sturgeon Lake Indian band campground. A youth camp is operating in the Crooked Creek area, however, and a ski hill is located on the breaks of the Little Smoky River at the Highway 34 crossing.

The Smoky, Little Smoky and Simonette are the major rivers in the planning area. The canyons associated with these rivers are an outstanding geographical feature of the region. Boating down the rivers essentially provides a wildland recreational experience as little evidence of human activity is visible from the water. The potential for boating and hiking is still to be realized. Primitive-type facilities to accommodate these uses will be developed as the need arises. The Great Canadian Smoky Marathon River Race is held annually (it is an international competition every fourth year).

Management Objectives

1. To manage the recreation resource while allowing public enjoyment of the natural values and aesthetic qualities of the environment.
2. To promote recreational uses by upgrading and expanding existing public recreation facilities.
3. To provide new recreation facilities for group camping, winter trails and boating routes.
4. To encourage the provision of a diverse range of private- and public-sector tourism facilities, attractions, accommodation types and services which are capable of meeting increasing demands for leisure and business related opportunities on a year-round basis.
5. To encourage the development of commercial and private-sector tourism and recreational facilities through the disposition of Crown lands.

Management Guidelines

1. Continued public access to recreational resources on Crown lands will be maintained; control will only be to the point necessary to prevent or mitigate environmental damage or the depletion of wildlife and fisheries resources.
2. A limited degree of site development may occur in response to public demand for non-facility, low-density recreational amenities associated with boating, hunting and fishing.
3. Opportunities for wildland recreational activities will be maintained.
4. The disposition of Crown land for commercial and private tourism and recreation facility development will take place in a manner which recognizes adjacent and surrounding resource uses and values. Thereafter, the form of disposition should be tailored to assist the proposal's viability.
5. Planning advice will be provided to assist existing and potential operators of commercial tourism facilities and services in the planning area.

Timber

Timber harvesting in the planning area dates back to the 1930s. Early harvesting was carried out on a selective basis with only the largest trees being cut on what was known as a stump diameter cut. The timber industry has provided a source of "off-farm" income since the area was first settled and continues to do that to this day.

Large fires ravaged the planning area during the 1940s and early 1950s. As a result of this there are extensive areas of immature forest in the region, much of which is stocked with valuable young coniferous trees occurring under an aspen overstorey. These young forests are needed to balance the age-class distribution of forest lands in the Grande Prairie Forest District. Much of the forest in this region is mature and overmature. Young age-class timber is needed to ensure that future generations will continue to have uninterrupted use of the forest resource.

In 1964, the Government of Alberta entered into a forest management agreement (FMA) with Canadian Forest Products in the southern portion of the G2 Management Unit. This provides the company with a continued timber supply based on sustained-yield forestry practices and regeneration of cutover lands. At present this is the largest timber operation in the planning area with an annual allowable cut (AAC) of some 25 750 m^3 (6 000 000 fbm). The annual harvest on the G2 portion of the FMA should increase significantly in approximately 30 years time as there is an abundance of young-growth coniferous timber which will start to reach merchantable size at that time.

Canadian Forest Products primarily hire local people to carry out harvesting and reforestation operations in this area. The timber is in close proximity to the communities and thus workers are able to commute to and from their homes on a daily basis.

In 1969, the Procter and Gamble Company of Canada Ltd. was granted a provisional reserve in the northern part of the G2 Forest Management Unit (FMU). The terms and conditions of this reserve are recorded in an FMA with the company (Sects. 7 and 8, OC 1/69). The company has until January, 1989, to request that any part or all of the provisional reserve be annexed to its existing FMA located to the southwest of the planning area. A very small portion of this FMA extends into the planning area between Ante and Spring creeks. The company has not made any request for annexation to date.

The AAC is conservatively set at 5360 m^3 (1 250 000 fbm) for that portion of the provisional reserve lying within the planning area. The majority of the AAC is currently being harvested by local people under the authority of local timber permits (LTPs).

Local residents have been harvesting an average of 13 900 m^3 (3 240 000 fbm) under LTPs during recent years in the planning area. The permits are issued to harvest specified volumes up to a maximum of 750 m^3 of green coniferous timber per individual on an annual basis. The demand exceeds the supply; therefore, the AFS has initiated a draw which is held in the fall of each year.

As the forest land base is shrinking, it is anticipated that the amount of coniferous timber now being made available to local residents will not be sustainable. The annual harvest will be modified to reflect:

- the final negotiated decision with regard to Procter and Gamble's Provisional Reserve;
- the identification of any required replacement lands for FMAs, which will affect the AAC currently being made available for public use; and
- determination of future allocations of land in the Green Area to other uses, such as improved grazing.

Reforestation can only be carried out on permanent forest lands as a minimum of 80 years is required to produce a forest crop. Liquidation harvest will take place on lands slated for agricultural expansion and this will ultimately reduce the amount of timber available to local operators.

In addition to the coniferous timber resource, there are large supplies of deciduous timber (mostly aspen). Up until now, there has been little demand for this wood; however, interest is increasing as new methods of using this resource are being developed and brought on-stream in Canada. It is anticipated that there will be a substantial market for deciduous timber within the foreseeable future, thus providing a boost to the local economy. Aspen is also of significance as a "nurse crop" for spruce in the natural succession process.

In conclusion, the forest resource has contributed to the economy of the area since the days of the first settlers and will continue to do so. This can be assured through careful long-range planning, so that lands are allocated for permanent timber production in association with other uses of the land which can coexist with the growing of trees. Governments and industry must have long-range assurance of a specified land base before they can employ expensive silvicultural practices which are required to maintain and enhance products and uses associated with the forest.

Management Objectives

1. To manage the timber resource for sustained-yield while promoting a forest environment of high quality.
2. To provide a sustained supply of wood fibre for industrial and local use now and in the future.
3. To protect the forest from damage, including destruction by fire, insects, disease or other causes.

4. To provide for other forest land uses.

Management Guidelines

1. Intensive forest management techniques will be utilized.
2. Harvested stands will be reforested in accordance with established reforestation policy.
3. Salvage logging will be used in the event of fire or infestation by insects or disease.
4. Timber harvesting will be planned in accordance with the Timber Harvest Cut Block Design Manual (Henderson, 1977) and established annual operating plan ground rules in effect. Wildlife and environmental values will be recognized through modification of these conditions when found necessary through Alberta Forest Service (AFS/Fish and Wildlife (F&W) consultation.
5. Grazing may be allowed in sustained-yield timber harvesting areas subject to restrictions or modifications determined to be necessary by detailed operational planning in order to ensure successful timber regeneration.
6. The timber resource within the permanent forest land base will be managed on a sustained-yield basis.
7. All existing timber commitments such as FMAs and the provisional reserve will be honoured.

Watershed

Wholly contained within the planning area, the Sturgeon Lake/ Sturgeon Creek watershed is the most important water resource. Sturgeon Lake has provincial significance as a water-based recreation area, being promoted by the tourist industry and supported by two provincial parks and several private tourist facilities.

Forming the boundaries of the planning area are the Smoky, Little Smoky and Simonette rivers. The deep and generally undeveloped valleys associated with these rivers provide special habitat for wildlife and provide the better stream fishing opportunities in the area. The valleys are narrow and are being actively modified by erosional forces. The Smoky River has two potential hydro-electric sites within the planning area: the 19th baseline site and the Watino site. In either case flooding would be contained well down in the valley.

The remainder of the sub-region is characterized by intermittent streams. These nearly always flow during the spring run-off and then sometimes later in the year as a result of either a short intensive rainfall or else after a long period of wet weather. Generally the creeks do not provide reliable water supplies. Water supplies in the area are provided chiefly by dugouts, wells and some small reservoirs on the intermittent streams.

The area has soil erosion problems caused by running water as in the Clouston Creek area. Farmland drainage is also a problem as in the DeBolt area. Considering land currently under cultivation, the "water problems" encountered by farmers do not appear to be, on the whole, any greater or worse than elsewhere in the Peace River region.

Local problems, however, can be significant and costly to rectify. Because of the historic and natural selection process that took place in opening up current farmlands, remaining lands will generally have greater limitations to production in the form of greater erosion potential (on the steeper slopes of the Puskwaskau Highlands) and will probably require more drainage work (lands south of Highway 34).

The Spring Creek research basin is a major undertaking by Alberta Environment in determining the cause-effect relationship between the hydrology of a watershed and major land-use changes. Monitoring of the watershed with natural cover has been an ongoing project for over 15 years. Changing land use in the watershed will allow the second phase of the research to commence.

Management Objectives

1. To provide water for consumptive and non-consumptive uses.
2. To strike a balance between the conflicting needs of different resource users.
3. To promote the restoration and reclamation of degraded watersheds.
4. To promote soil conservation and watershed protection in order to maintain water quantity and quality.

Management Guideline

Appropriate restrictions, regulations or other measures will be applied as required in order that:

a) an equitable balance is struck between the conflicting needs of different resource users (such as conflicts between agricultural drainage and wetland wildlife habitat retention); and

b) resource management activities and other land-use practices do not detrimentally affect water supply, quality and soils to the extent that on-site and downstream water uses are diminished.

Wildlife

Most of the planning area is highly capable ungulate range, however much of the prime land has succumbed to the cow and the plow. Most wildlife habitat now lies in the large blocks of remaining Crown land and within the valley breaks. Moose, mule deer, whitetail deer and elk populations support a popular recreation and hunting resource. Some limited guiding operations exist.

Intensified land-use activities in recent years (petroleum and natural gas exploration, timber activity, grazing and new agricultural land) have opened up portions of the planning area which not long ago were inaccessible tracts of land. As a result many wildlife populations have experienced rapid changes in abundance and distribution. The rapidly decreasing Crown land base has had serious impact on many of the 41 registered trapline areas, a wildlife resource activity that provides winter employment for many of the local farmers.

Hunting is an important recreational activity in the planning area. There are dense populations of moose occurring throughout much of the Crown land area. Both mule deer and whitetail deer frequent the canyons and settlement edge areas. In addition to the recreational opportunities associated with hunting, many local residents view the taking of wild game as a supplemental means of providing their family with meat.

Management Objectives

1. To manage the wildlife resource to ensure that viable populations of species are maintained for recreational, subsistence and economic benefit.
2. To develop and maintain the amount, distribution and variety of hunting opportunities for recreation.
3. To develop and maintain the habitat base necessary to support the wildlife resource demand.
4. To develop and maintain operational field programs which serve to prevent and control wildlife damage to people and property and minimize conflicts between wildlife and society.
5. To minimize the impacts of land use practices and resource developments on trappers.

6. To maintain furbearer populations by protecting habitat and minimizing impacts resulting from development.

7. To provide and maintain access to Crown lands for the users of the wildlife resource.

8. To develop information to promote positive relationships with landowners, leaseholders, sportsmen and recreationists.

9. To minimize negative impacts of OHV access on the wildlife resource.

Management Guidelines

1. Agencies or companies responsible for land-use practices and resource developments that have impact on wildlife habitats will be encouraged to recognize concerns of trappers and take measures to mitigate activities adversely affecting their operations.

2. Public Lands and the AFS will notify F & W before posting lands for agricultural sale or lease so that registered trappers can be notified of resource area deletions. F & W will issue a letter to the senior trapper clearly identifying the exact area deleted or affected, the effective date of deletion, and details of the sale or lease.

3. There will be consultation with trapline holders during the detailed operational planning for any proposed recreation developments within registered trapping areas.

4. The Valleyview F & W District Office will respond to problem wildlife concerns reported by landowners and will attempt to provide control measures to alleviate problems. Control measures may be used for wolves, bear and other species.

5. Game hunting regulations will be used as a management tool to ensure viable wildlife populations are maintained. Regulations will reflect population trends observed through periodic game surveys.

6. Modifications to or restrictions on resource exploration, development or management activities will be required as necessary in order to ensure the maintenance of important wildlife habitats and to mitigate potential impacts on the wildlife resource. Such measures are most likely to apply within Conservation areas of emphasis (see p.29). Resource development may be prohibited where necessary to ensure the maintenance of populations of rare, threatened or endangered species of wildlife or where the area is critical to the survival of a local wildlife population. Areas where resource development is prohibited will be determined through agreement between the involved agencies. It will be necessary to conduct field surveys to determine the

nature and extent of these areas and to delineate additional areas in which resource activity may be restricted or prohibited.

7. District enforcement staff will promote positive relationships and programs through contacts with landowners and the public.

8. Detailed inventory assessments of wildlife habitat and populations will be necessary as part of the input to more localized management plans.

Resource Allocation Scheme

At the policy stage of the planning process, resource use priorities were established for the entire planning area and spatially differentiated by means of a zoning scheme and the identification of special areas. These allocations constitute the basic policy framework of the plan. By compartmentalizing the planning area in this manner, the various land bases have been identified and apportioned in order to render feasible the achievement of the broad resource objectives.

Just under four per cent of the planning area lies within the Eastern Slopes Region[1]. In the interests of consistency and uniformity, the refined zoning designations formulated at this more detailed level of planning have been applied to this area. The designations used are consistent with the intent of the zones used in A Policy for Resource Management of the Eastern Slopes, Revised 1984 (Alberta, 1984).

At the design stage of the planning process, the direction in the RMP has been further refined by the creation of RMAs (Chapter 3, page 39). The progressive refinement of management direction resulting from the planning process is schematically illustrated in Table 1. Collectively, the zoning and other resource allocation designations, the stated management intents for the RMAs, and the broad and specific management objectives and guidelines (including the three general guidelines identified on page 7), constitute the provisions of the plan[2]. These provisions provide varying levels of direction for the present and future use, management, and development of resources within the sub-region.

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[1] Ptns. 67-26-W5M and 67-25-W5M; 67-24-W5M; 17-20 and 29-32-67-23-W5M.

[2] There are also various portions of the text where the context clearly denotes that a commitment is being made or direction being provided. These too should be considered provisions of the plan.

Table 1

PROGRESSIVE REFINEMENT OF MANAGEMENT DIRECTION

	Framework	Intent
1.	Provincial policies, acts, statutes, regulations, conventions, established procedures	Establish the framework to which all further planning and management functions must adhere.
2.	Broad management objectives and guidelines	Establish sub-regional policy direction based on a refinement of stage 1 and an assessment of resource capability, use, demand and potential.
3.	Resource allocation scheme (zoning designations)	Identify and apportion the various land bases required in order to render feasible the achievement of the broad resource objectives.
4.	Resource management areas	Differentiate management intents or sets of resource priorities between large portions of the planning area, recognizing jurisdictional and administrative distinctions.
5.	Specific objectives and guidelines	Give effect to the intentions expressed in stages 1 - 4, provide clear direction on the operational level; and ensure the effective integration of resource management activities by minimizing conflicts.

The following sections deal with each zone and special area individually. In order to attempt to get away from some of the negative connotations associated with the word "zone", they are referred to as "areas of emphasis"[3]. These areas are depicted in Figure 9 in the rear folder of this document. The detailing of each area of emphasis begins with an intent statement indicating the resource priorities which have been established. The intent statement is followed by a list of explanatory criteria to illustrate the considerations behind the delineation of the area. Resource management direction is then given on the permitted status of the various resources within the area. The anticipated consequences of the resource allocation scheme are then detailed on a resource-specific basis for those resources where the implications will be significant. Finally, the rationale justifying the emphasis is stated.

Agricultural Emphasis

Intent: Sustained agricultural utilization with the disposition of lands suitable for till cropping or grazing to meet the needs of the farming community.

Criteria: The following criteria were considered in identifying lands to be placed in this area:

- -- lands of the highest agricultural capability;
- -- areas of high local agricultural demand;
- -- lands adjacent to existing farmland and lands close to established farming communities;
- -- readily accessible and developable lands;
- -- lands with suitable topographic and drainage characteristics; and
- -- timbered lands isolated by agricultural areas where forest protection will not be an undue problem.

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[3] Zoning is a traditional land-use planning tool most commonly used in an urban planning context as a regulatory mechanism. By contrast, the resource allocation scheme developed in this plan constitutes a framework within which direction for the use and management of resources is given at a sub-regional level. With few exceptions (e.g., no till cropping allowed in the Multiple Use area), it is not a highly prescriptive device. Neither, by definition, is it regulatory, as this is a policy document. Accordingly, the expression "area of emphasis" is considered to be rather more accurate and less misleading than the word "zone". Semantics aside, the change has no effect on the purpose or function of the designations. The intents and all associated provisions stand, as stated, as a central policy element of the plan.

Resource Use/Management Direction: Agricultural uses will have priority of use in all areas suitable for agricultural production. All other resource uses will be subject to existing guidelines and regulations (which in some cases may be restrictive or prohibitive).

Implications:

Agriculture -- About 131 sections of Crown land[4] (containing 63 000 acres or 25 500 ha of land having agricultural capability)[5] will be made available for settlement over time. An additional 17 sections of land in the Spring Creek area will be developed for large scale improved grazing purposes (see Figure 9, Obj 4 p.95 and Gl 11, p.97).

Fisheries -- There will be adverse impacts on the fisheries resource. Extensive land clearing and drainage programs, a failure to maintain vegetated areas along watercourses, and the sensitivity of agricultural soils to erosion have already destroyed the fisheries in Debolt, Harper, Clouston and Wabatinisk creeks. Further land clearing will contribute to these types of problems elsewhere.

Infrastructure -- Increased servicing and access requirements will be needed and will require appropriate phasing with agricultural expansion activities.

Minerals -- The increased emphasis on agriculture will have several general effects on mineral resource activity, specifically on petroleum and natural gas activity. The transfer of Crown land to private farmers means that the industry must negotiate with numerous landowners for exploration access and also face added restrictions in locating wells and pipelines, which can result in delays, loss of flexibility, and the expense of access compensation payments. On leased grazing lands the leaseholder charges the particular company an annual damage fee. A benefit of the change to an agricultural emphasis may result from the much-improved road access which should facilitate exploration.

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[4] This figure is accurate as of August 1987. The total, of course, has changed over time --reflecting ongoing sales of Crown land in the White Area. At the Resource Management Policy stage of the planning process (May 1984) the total was higher (161 sections).

[5] Wherever agricultural figures such as this are cited in this document, the number in sections is the amount of land that the Crown is prepared to make available providing it is suitable for agricultural development. The bracketed figure in hectares which follows is an estimate of the amount of arable land within this total. Detailed soil surveys will be required in order to determine accurately how much arable land is actually present. The estimate is a downward conversion based on site inventory work which has been done in the planning area in the past, and is variable in order to reflect differing conditions in various parts of the sub-region. More detailed information is given in the Appendix to the Resource Management Policy (Alberta Energy and Natural Resources, 1984 a).

Timber -- Approximately 50 sections of Crown land will be relinquished for agricultural development from the G2 Forest Management Unit (FMU). Most of this land is not stocked with merchantable timber, or is not regenerated, or contains only hardwood species. There will be little coniferous timber losses to committed timber volumes.

Approximately 84 sections of Crown land will be relinquished for agricultural development from the G02 and G04 Green Area FMUs. A timber reservation will be required on a few quarters until liquidation of commercial timber is carried out. These quarters can be identified through operational planning. Additional lands in G02 and G04 will be transferred from the Green Area to the White Area, but will remain as Crown land in Multiple Use or Conservation areas of emphasis.

Various Crown lands lying outside existing FMUs in the White Area will be relinguished for agricultural development. There are significant coniferous timber resources on 26 sections of these lands as follows:

-- 14.5 sections with 50 acres (20 ha) or more of coniferous regeneration per quarter section;
-- four sections with 860 m3 or more of merchantable coniferous timber per quarter section;
-- 7.5 sections with both 860 m3 or more of merchantable coniferous timber and 50 acres (20 ha) or more of coniferous regeneration.

Overall, there has been a significant loss of unstocked sites with a high capability for growing coniferous timber. This may affect the Community Farm Woodlot Program by reducing the annual harvest. The number of local timber permits available may also be reduced. There will not be significant commercial timber losses to committed timber volumes. Aspen losses will be incurred, but again, losses to committed volumes are negligible.

Watershed -- Land clearing, farming practices and infrastructure development will result in higher peak flood flows increasing the likelihood of inducing erosion problems in downstream watercourses and at existing control works. Drainage works will probably be required on newly available agricultural lands. Increased erosion, coupled with sediment loading originating on farmland, will affect both aquatic habitat and general water quality. In the long term, receiving water bodies will see increased nutrient loadings.

Wildlife -- About 131 sections of high quality habitat will be lost to agricultural development. This will reduce the ungulate population of the planning area by about 380 animals. The land base of 23 of the 44 registered traplines in the planning area will be affected by agricultural developments. Several lines will lose in excess of 25 per cent of their present trapline land base.

The significant reduction in the land bridge connecting the Puskwaskau highlands with the Smoky River breaks (Rges 24 and 25, Twp 75, W5M) may have serious implications for the movement of ungulates.

The irregular boundary between the Agricultural emphasis area and the other designations creates an edge effect that is beneficial for wildlife, but which will result in increased nuisance wildlife problems.

Justification:

The relinquishing of large areas of Crown land to agricultural uses has inevitable and significant impacts on a broad range of other resources. There is, however, a considerable public demand for settlement lands in the Peace River region. This demand is recognized by the Government of Alberta through the accelerated land sale policy. Currently, the remaining stock of Crown lands available for farming purposes within the planning area is almost entirely exhausted. The identification of considerable amounts of additional land suitable for agricultural production was required in order to meet the expansion requirements of the farming community and to increase the viability of existing farm units. Undesirable effects on other resources have been minimized wherever possible.

Multiple Use Emphasis

Intent: Multiple-use management aimed at the optimum utilization of resources. Activities related to sustained yield timber harvesting, wildlife management, watershed management, grazing, and minerals exploration and development will predominate.

Criteria: The following criteria were considered in identifying lands to be placed in this area:

-- lands with 860 m3 (200 000 fbm) or more of merchantable coniferous timber per quarter section;
-- lands with 50 acres (20 ha) or more of coniferous regeneration per quarter section;
-- lands with both 860 m3 (200 000 fbm) or more of merchantable coniferous timber and 50 acres (20 ha) or more of coniferous regeneration per quarter section;
-- lands of high forest capability;
-- lands under FMA, provisional reserve, and MTU;
-- stream and river headwaters;
-- areas of excellent ungulate range (two or more ungulates per square mile [2.6 km2]);
-- upland and migratory bird and furbearer habitat;

- wildlife habitat with combinations of shelter, security and browse;
- mineral licks; and
- isolated land areas with exceptionally high timber values. The two small outliers (Rge 22, Twp 71, W5 and Rge 23, Twp 68, W5) are stocked with about 53 110 m3 (12 375 000 fbm) of merchantable coniferous timber and have approximately 580 acres (235 ha) of regeneration.

Resource Use/Management Direction: Till cropping will not be permitted. All other resource uses will be subject to existing guidelines and regulations (which in some cases may be restrictive or prohibitive).

Implications:

Agriculture -- About 99 sections of land (containing some 42 000 acres or 17 000 ha of potentially arable lands) will not be made available for cultivation.

Minerals -- Proper recognition of potential problems during operational activities and the implementation of mitigating procedures will enable mineral exploration and development activities to occur throughout the area.

Timber -- Sufficient lands containing coniferous regeneration and commercial timber have been included in the Puskwaskau Hills area to meet existing timber commitments in the planning area. The calculated AAC for this area may be increased, based on the large amount of young conifers in the area.

Wildlife -- Wherever grazing occurs, the capability of habitat to support wildlife populations is reduced primarily through behavioural competition and competition for browse and forage. Clearing and fencing will exacerbate this problem wherever improved grazing developments occur.

Other Resources -- Proper recognition of potential problems during operational activities and the implementation of mitigating procedures will reduce the chance of significant negative impacts occurring.

Justification:

Multiple-use areas are required to ensure the continued availability of timber, wildlife, water, fisheries and recreation opportunities to meet existing and expected demands in the sub-region. In a number of areas, lands of agricultural capability are retained in the Multiple Use emphasis area. The reasons for withholding these lands are detailed below.

Most of the lands in the Puskwaskau highlands, while theoretically capable of being cultivated, are not suitable for that purpose. Factors such as long, excessively steep slopes, high elevation, poor drainage, no access, numerous watercourses, the presence of commercial stands of coniferous timber (held under FMA), and wildlife habitat and migration routes, preclude these areas from being included in the Agricultural emphasis area.

Some small pockets of land with high arable capability were identified in the G02 Green Area FMU in Twps 69 and 70, Rges 1 and 2-W6M. These areas are small and are too far removed from significant blocks of potentially arable lands to be included in the Agricultural emphasis area. However, they have a very high capability for improved grazing.

Conservation Emphasis

Intent: Multiple-use management consistent with the conservation of environmentally sensitive resources. The primary emphases will be on ensuring the retention of recreational and aesthetic values -- especially those associated with the river canyons; supporting significant fisheries and wildlife populations; and protecting riparian lands where erosion, slumping and flooding occur or where buffering is required to address water quality concerns.

Criteria: The following criteria were considered in identifying lands to be placed in the Conservation rather than the Multiple Use area:

- -- fluvial ecosystems as delineated by the plan's companion Ecological Land Classification and Evaluation report (ELC) (Alberta ENR, 1983a) and including banks, floodplains, outwash deposits, slumps, terraces, and valley and canyon walls;
- -- lands of high visual quality;
- -- lands of high recreation capability;
- -- areas of ecological significance;
- -- areas of particular habitat value including: critical habitat such as waterfowl production and staging areas, and ungulate wintering areas and travel corridors; areas of exceptionally high ungulate, waterfowl, upland bird or furbearer use or production; waters with one or more sportfish species; and waters with potential for future fisheries development;
- -- isolated land areas surrounded by the Agriculture area which were designated Conservation based on low arability, wetness, and waterfowl significance; and
- -- lands held under conservation reservations.

Resource Use/Management Direction: Dispositions leading to title will not be issued on Crown lands. All resources uses,[6] except as noted below, will be subject to existing guidelines and regulations (which in some cases may be restrictive or prohibitive).

The criterion of vulnerability, as applied to the management intent statement, shall be used in determining the need for imposing additional management controls on resource uses which may conflict with the habitat, hydrological, and recreational priorities identified. The most common resource uses likely to have adverse impacts are commercial, industrial and residential developments, grazing, minerals exploration and development, till cropping, timber harvesting, transportation and utility corridor developments, and recreation. Recreation appears in the list as particular recreation activities may conflict with each other and with the integrity of the recreational resource base, habitat, and sensitive riparian lands.

The RMA-specific management objectives and guidelines contained in Chapter 3 of this document are designed to give effect to the above direction.

Implications:

Agriculture -- Only a small portion of the 71 sections of land (containing some 31 000 acres or 12 600 ha of potentially arable lands) will be made available for cultivation.

Ecological Resources -- Natural features of provincial significance, such as the river canyons, are recognized by the zoning designation.

Fisheries -- Quality fisheries will receive strict protection.

Minerals -- Possible effects on mineral activity are not expected to be significantly more restrictive than existing operating guidelines. Petroleum and natural gas activities will be allowed under appropriate conditions to be determined on a site-specific basis. The delineation of areas of highest conservation value provides clearer land-use direction to the industry than that which previously existed.

Recreation -- The recreational potential of areas within the zone are recognized and opportunities will exist for a broad spectrum of recreational experiences.

Timber -- Potential losses are anticipated to be insignificant. Part of the zone contains steep slopes that would not be logged under existing operating ground rules. Soil sensitivity, technological constraints, and operating costs preclude harvesting on the steep canyon

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[6] Till cropping is not prohibited because the area designations have been drawn to the nearest quarter section. Consequently, there are small areas on the periphery of the Conservation designation in the White Area where there are no environmentally sensitive resources and where till cropping can be allowed (see also Gl 2, p. 65).

areas. Other areas of the zone will be operable. There are significant areas of merchantable coniferous timber and regeneration in the Puskwaskau Highlands.

Watershed -- Any general deterioration in water quality will be prevented from developing, and resource uses susceptible to flooding or any other hydrologically related impact will be restricted from potentially hazardous areas.

Wildlife -- Significant wildlife populations will receive protection from habitat loss and other negative changes. Some reduction in ungulate numbers and wildlife habitat will occur as a result of presently approved range improvement plans on existing leases.

Justification:

A multiple-use area with a conservation emphasis is required to ensure that important and highly susceptible resources such as watershed, fisheries and wildlife, and areas of recreational significance, are adequately safeguarded with respect to other resource uses in areas where they are particularly significant.

The watershed sub-intent is required to protect areas which are of significance to the hydrological cycle of the sub-region such as: retention areas which reduce peak flows; areas such as vegetated valley slopes which prevent increased erosion; and areas which filter suspended sediments or retain nutrients, thereby improving downstream water quality.

The fisheries and wildlife sub-intent recognizes the essential area and habitat bases required to ensure the retention of significant populations within the sub-region - most of which is devoted to intensive land-use practices destructive of limited and diminishing habitat. The most northerly corridor linking the Puskwaskau Highlands with the riparian areas adjacent to the Smoky River is of critical importance for the seasonal movement of moose populations.

The recreational and aesthetic intent recognizes the value of the major river canyons within the Peace River Region as features of provincial significance which enhance the quality of life of residents of this part of Alberta and which offer outstanding recreational opportunities.

In a number of areas, lands of agricultural capability are retained in the Conservation area. Most lands capable of cultivation are located in the vicinity of the Simonette and Little Smoky rivers. It is primarily wildlife (mostly travel corridors) and hydrological interests that are paramount in these areas.

The relatively small conservation outliers scattered throughout the Agricultural area are generally wetlands unsuitable for cultivation. That parcel abutting the eastern edge of Sturgeon Lake (ptns

70 and 71-23-W5M), however, does contain some lands of good arable capability. This area has been withheld primarily because of critical fisheries and wildlife habitat concerns and because the area serves as an effective hydrological buffer for Sturgeon Creek, the water supply source for Valleyview. The timber resources of this parcel are also significant, both in terms of merchantable volumes and regenerated stands.

Watershed Protection Emphasis

Intent: **Multiple-use management to the extent compatible with the prevention of increased nutrient and sediment loadings into Sturgeon Lake.**

Criterion: The entire Sturgeon Lake watershed.

Resource Use/Management Direction: Resource uses consistent with the watershed protection intent will be encouraged. This will help to ensure the continued viability of Sturgeon Lake's recreation, fisheries and water supply uses. Within the watershed, fishing, hunting, non-consumptive uses of wildlife and extensive recreational uses will be encouraged. Sustained yield timber management and petroleum and natural gas exploration and development will also occur with practices modified as necessary to recognize the special sensitivity of this watershed. Any new dispositions for till cropping or improved grazing purposes will not be issued at this time (see "Reviewing the Watershed Protection Intent", p.36). Improved grazing on Crown lands will continue, however, on existing leases and the Valleyview Grazing Reserve. Other resource uses will be subject to existing guidelines and regulations (which in some cases may be restrictive or prohibitive).

As with the Conservation designation, the criterion of vulnerability, as it relates to the management intent statement, shall be used in determining the need for imposing additional management controls on resource uses which may conflict with the water quality priority identified. The most common resource uses likely to have adverse impacts are commercial, industrial and residential developments, grazing, mineral exploration and development, timber harvesting, transportation and utility corridor developments, and recreation.

The RMA-specific management objectives and guidelines contained in Chapter 3 of this document are designed to give effect to the above direction.

Implications:

Agriculture -- About 44 sections of land (containing some 22 700 acres or 9 200 ha of potentially arable lands) will not be made available for cultivation. The Sturgeon Lake basin is contiguous to a permanent well-established agricultural community. The restrictive Watershed

Protection designation precludes a logical and significant extension of the agricultural community in the Valleyview area.

Fisheries -- The zoning designation will ensure that water-quality deterioration in this area is minimized, and so will contribute toward the objective of maintaining a viable fishery in the Sturgeon Lake watershed.

Minerals -- Possible effects on mineral activity are not expected to be significantly more restrictive than existing operating guidelines. Petroleum and natural gas activities will be allowed under appropriate conditions to be determined on a site-specific basis. The delineation of areas of highest conservation value provides clearer land-use direction to the industry than that which previously existed.

Recreation and Tourism -- Provision of recreational and tourism opportunities will respect water-quality considerations. Appropriate restrictions will be placed on specific activities if warranted on a site-specific basis.

Timber -- Potential losses are anticipated to be insignificant. Timber harvesting will exert minimal pressure on the Sturgeon Lake Basin, as special consideration will be given to harvesting and reforestation techniques.

Watershed -- Increases in nutrient and sediment loadings from Crown lands will be minimized. This will result in the maintenance of acceptable water-quality conditions for longer than would otherwise be the case.

Wildlife -- Restrictions stemming from the prohibitive zoning designation will generally minimize habitat loss and other negative changes, although any new grazing dispositions will result in increased access and some competition for browse and space.

Justification and Discussion:

Water-Quality Concerns in the Sturgeon Lake Basin

Summary: Water-quality concerns in the Sturgeon Lake basin dictate the need for special considerations in this portion of the planning area. Sturgeon Lake is eutrophic, and progressively declining water-quality conditions have been monitored over the years. This situation has potentially serious impacts on the lake's significance as a regional recreational resource; on fisheries habitat, with attendant ramifications for both the recreational and commercial fisheries; and on downstream water users, notably the town of Valleyview.

Recreation Value and Concerns: Sturgeon Lake is the most significant recreational lake in the Peace River region. Increased nutrient inputs will lead to more prolific vegetative growth, which will detract from recreational use of the lake. No alternative areas exist capable of catering to the same amount and variety of recreational use. In this sparsely populated region, the lake is used by over 50 000 recreationists annually.

Fisheries Value and Concerns: Sturgeon Lake is the only major sportfishery in the planning area, producing annually an estimated 7 600 kg of pike, 5 400 kg of walleye, and an unknown number of perch to over 21 000 anglers. The lake also supports an Indian domestic fishery and a Grade A commercial whitefish fishery, producing a combined 18 000 kg of lake whitefish annually.

All major fish species have shown dramatic declines in growth rates owing to suspected environmental changes. The lake suffers from extensive blue-green algae blooms which cause localized summer fish kills. About 65 per cent of the Sturgeon Lake basin drains via Goose Creek. Any increase in the siltation load carried by the creek would likely threaten major walleye spawning beds in the creek itself, and whitefish spawning beds on the eastern side of the lake. Additionally, almost one-third of the watershed is patent or leased land, primarily in agricultural use, and primarily concentrated around the western arm of Sturgeon Lake. Any intensification of land-use activities on these lands would increase nutrient loadings. This in turn might affect adversely the fisheries resource by exacerbating the eutrophic state of the lake, thereby resulting in periodic low dissolved oxygen levels and associated fish kills.

Water Supply Value and Concerns: The Alberta Water Resources Act (RSA, W-5, 1980) recognizes that the salient importance of water in the province of Alberta is for human consumption. Increased nutrient loadings into Sturgeon Lake would lead to increased algal blooms and aquatic vegetation in the lake. This would probably result in increased maintenance and operational costs in conveying a reliable and acceptable water supply to Valleyview.

Agricultural Value and Concerns in the Sturgeon Lake Basin - Background and Future Directions

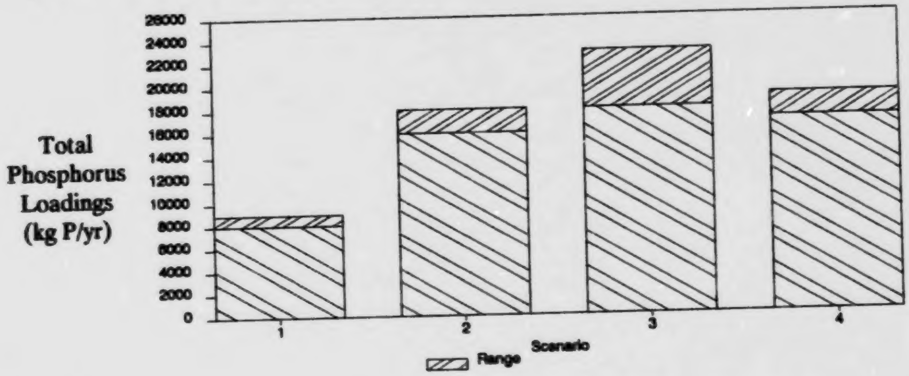
Background: Agriculturally capable lands in the Sturgeon basin are located adjacent to both existing and proposed areas of agricultural development. As such, they represent an attractive and logical bank for future agricultural expansion. An interim document in the planning process, the May 1984 Resource Management Policy, placed 31 sections of land in the Sturgeon Lake watershed in the Agriculture area of emphasis as potentially suitable for mixed agricultural development, while at the same time reaffirming the intention not to jeopardize further the water quality of Sturgeon Lake.

Predicting Sediment and Nutrient Loadings in Sturgeon Lake: To address the dual task of agricultural expansion and watershed protection, Alberta Environment decided to retain a consultant to determine what effect the opening of new agricultural lands might have on sediment and nutrient loads into Sturgeon Lake, and to identify how such effects might be mitigated. The report (Stanley Associates Engineering 1985, Predicting Sediment and Nutrient Loadings: Sturgeon Lake Watershed) confirmed the eutrophic state of the lake and used sophisticated modelling techniques to quantify the relationship between the amount and kind of agricultural development and the associated volumes of external sediment and nutrient loadings under various land use development scenarios.

The state-of-the-art of limnological research is such that the effects of increased amounts of sediments and nutrients into Sturgeon Lake cannot be predicted accurately. This is largely because the vast majority of nutrients available for increased plant growth comes from phosphorus already present in the lake. This condition is a common characteristic of many shallow prairie lakes and is known as internal loading. The consultant's report deals in detail only with external nutrient and sediment loads. Because the internal loading is so large, and because the relationship between external nutrient loading and internally regenerated nutrients is poorly understood, it is not possible to quantify the effects of increased external nutrient loadings on algal

Figure 4

Existing and Projected External Nutrient Loading Estimates under Various Land Use Development Scenarios[7]



Scenario 1: Current land use.

Scenario 2: Intensive mixed agricultural use on all lands currently available for agricultural development.

Scenario 3: Scenario 2 plus mixed agricultural development on 31 sections of currently vacant Crown lands.

Scenario 4: Scenario 2 plus improved grazing on 31 sections of currently vacant Crown lands.

[7] The range of values in the estimates reflect uncertainties about phosphorus trapping efficiences on Pelican, Goose, Long and Grassy lakes.

and water weed growth in Sturgeon lake. The consultant's report addresses this difficulty as well as is currently possible by concluding that increased external nutrient and sediment loadings are likely to result in continuing negative effects on fisheries, recreation and public water supply.

The report's results showed that fully developing the 31 sections of Crown land for mixed agricultural development would increase external nutrient loadings to the lake by an estimated 27 to 54 per cent over current levels (Scenario 3, Figure 4). The effect of any such Crown land development is small however, when compared to the likely effects of additional development on lands already available for agricultural use. Full agricultural development of these lands would approximately double current external nutrient loading levels (Scenario 2, Figure 4).

The report also estimated that dramatic reductions might be achieved in projected nutrient and sediment loadings either by adopting various mitigative controls on agricultural lands or by adopting a less intensive agricultural use (improved grazing - Scenario 4, Figure 4).

Reviewing the Watershed Protection Intent: Selection of a watershed protection focus for all Crown lands in the Sturgeon Lake basin demonstrates a high level of provincial commitment to water quality in Sturgeon Lake. At the same time, there is an equally strong provincial commitment to remain sensitive and responsive to local agricultural circumstances and requirements. Accordingly, the watershed protection focus should be viewed as an assessment of the most appropriate balance between competing watershed and agricultural objectives at this time. Future options for resource use allocation in the watershed remain open. The first major plan review (to be held about five years after plan approval) will reassess the zoning configuration in the southern part of watershed (south of Highway 34) with a view to reaffirming or revising direction at that time. In the meantime, however, a firm decision in favour of watershed protection has been made and future long term commitments for multiple use consistent with the watershed protection focus may be made on this basis. Appropriate guidelines are detailed in the Sturgeon Lake Watershed RMA section (commencing on p. 77).

Controlling Nutrient and Sediment Loadings from Patent Lands: Since developing lands outside Crown control would result in increases in nutrient loadings very much greater than any future agricultural development of Crown lands, the efficacy of the watershed protection intent may be questionable unless reciprocal measures are implemented in other jurisdictions. In the words of the consultant,

> Even the loadings under current development are in excess of those needed to support the eutrophic conditions which currently exist in the lake. It is quite apparent, therefore, that mitigative measures are needed on all developed lands within the basin if the water quality of Sturgeon Lake is to be protected or improved. (Stanley Associates Engineering, 1985)

While nutrient and sediment inputs do not respect jurisdictional boundaries, this plan must. Provisions of this plan do not apply to patent lands. Accordingly, by encouragement and example only, this plan strongly supports the adoption of any measures to reduce existing and mitigate further nutrient and sediment loadings from all agricultural lands in the watershed. It is recommended that the most effective way of achieving this is likely not through cumbersome mechanisms such as formalized multi-party advisory bodies or commissions, but through a co-operative extension program between agencies with jurisdiction, and stressing on-farm mitigative measures. There should also be close liaison with local authorities and individual landowners.

Special Areas

Spring Creek and Bridle Bit

Background

For many years Alberta Environment has maintained watershed research reservations on the Spring Creek basin. The objective of the research program within this watershed has been to study the relationship between land use and the hydrological cycle.

Based on data collected while monitoring the basin under pristine conditions, a computer model has been developed which defines storage parameters for differing land uses. In order to complete the research program, Environment needs to test this model against the effects of land-use changes on the hydrological regime. To do this, a control area is required while land-use changes take place in the rest of the basin. The best site for such a purpose is the sub-catchment area drained by Bridle Bit Creek.

Zoning the Spring Creek Basin

A portion of the lands covered by the Spring Creek watershed research reservations lie outside the watershed in the Sturgeon Lake watershed, because groundwater flows affecting the water balance in the Spring Creek basin may originate from this area of low-lying relief. In the remainder of the Spring Creek basin, lands having agricultural capability have been allocated either to the Agriculture area of emphasis or to large scale improved grazing use in order to meet the needs of the local farming community. When these lands are developed they will be cleared as quickly as possible in order to provide useful data for Environment's research program. All other lands in the Spring Creek basin have been apportioned between the Multiple Use and Conservation areas of emphasis based on the criteria listed on pages 27-28 and 29 respectively.

Bridle Bit Control Basin -- Resource Use/Management Direction

All resource allocations within the Bridle Bit catchment area will take effect once the research program is completed, i.e. when the Bridle Bit is no longer required for the purposes of a research control. This will occur after Environment has collected five to six years of data, once measurable changes to the hydrological regime take place in the remainder of the Spring Creek basin.

Until that time, no resource uses which may potentially impact upon the watershed will be permitted. This includes commercial, industrial and residential developments, grazing, minerals exploration and development, till cropping, timber harvesting, transportation and utility corridor developments, and any recreational uses or developments which may affect the watershed.

Portions of all four areas of emphasis are affected by the Bridle Bit Control Basin as follows (see Figure 9 for actual locations):

-- Agriculture area, 5 sections;
-- Conservation area, 1 1/4 sections;
-- Multiple Use area, 4 1/2 sections; and
-- Watershed Protection area, 1/4 section.

3. RESOURCE MANAGEMENT AREAS

Introduction -- Defining RMAs

In this chapter, specific management direction is detailed for each of several RMAs. RMAs are used as a tool to reduce logistical problems inherent in attempting either to formulate planning provisions for the entire planning area, or to formulate planning provisions for each of the areas of emphasis (which are frequently many, small and fragmented).

RMAs take into account jurisdictional and administrative responsibilities, and focus on sizable portions of the planning area which have a similar management intent or set of resource priorities. Lands recommended for the Green and White administrative areas are usually dealt with in separate RMAs. The Sturgeon Lake watershed is also recognized as a discrete RMA, as are the major river corridors, because the watershed and conservation priorities respectively affect management direction for a broad range of resources. For the rest, Multiple Use and Conservation areas of emphasis are both commonly sub- sumed within RMAs, and the plan's provisions recognize distinctions between the more detailed level of priorities reflected by these differing areas of emphasis.

Five RMAs have been identified in the Sturgeon Lake-Puskwaskau East planning area: Economy/Ante Creek, Puskwaskau, River Corridors, Sturgeon Lake Watershed, and Valleyview-DeBolt (Figure 5).

RMA-Specific Management Objectives and Guidelines

Each RMA is characterized by a short management intent statement which expresses the resource management priorities intended for that area. These priorities are reflected in the plan's management objectives and management guidelines, which are organized on a resource-specific basis for each RMA. Management objectives are intended to express the approach toward achieving the broader objectives identified for the entire planning area. Management guidelines are detailed in order to give effect to the management objectives. Frequently a single objective may be followed by several guidelines, or vice versa. This occurs because the broad management objectives and guidelines identified in the previous chapter are applicable to the entire planning area and often require particular direction to effect them in individual RMAs. In a few cases where the reason or purpose for the resource-specific objectives or guidelines may not be clear, an explanatory Rationale section is also added.

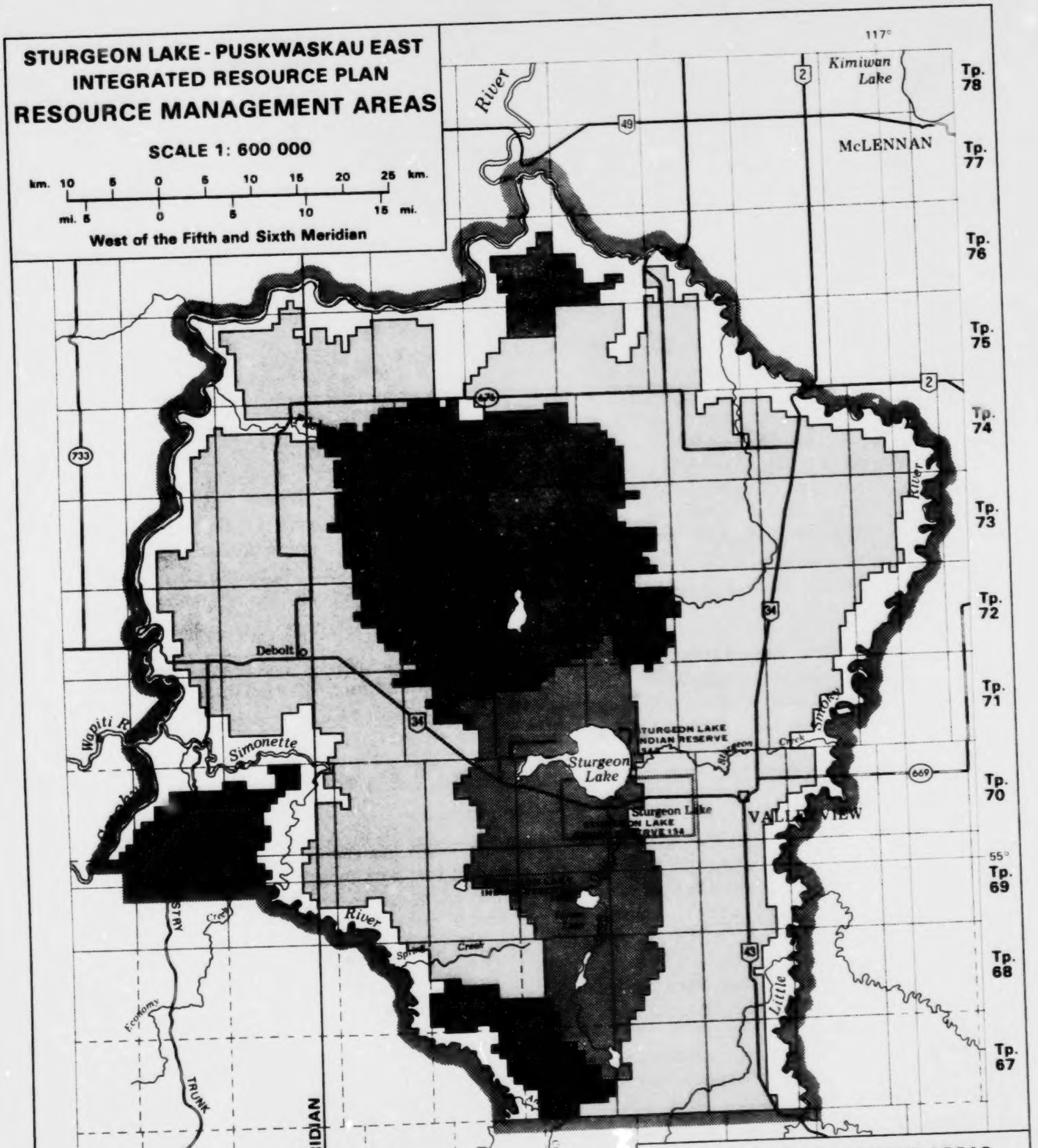

STURGEON LAKE - PUSKWASKAU EAST
INTEGRATED RESOURCE PLAN
RESOURCE MANAGEMENT AREAS
SCALE 1: 600 000
km. 10 5 0 5 10 15 20 25 km.
mi. 5 0 5 10 15 mi.
West of the Fifth and Sixth Meridian
117°
Kimiwan Lake
McLENNAN
River
Debolt
Wapiti R
Simonette
Sturgeon Lake
STURGEON LAKE INDIAN RESERVE
Sturgeon Lake
VALLEYVIEW
Smoky
River
Little
Creek
Economy
TRUNK ROAD
SIXTH MERIDIAN
2
49
733
34
669
43
Tp. 78
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Tp. 72
Tp. 71
Tp. 70
55°
Tp. 69
Tp. 68
Tp. 67
R.3
R.2
R.1
118°
R.26
R.25
R.24
RESOURCE MANAGEMENT AREAS
RIVER CORRIDORS
VALLEYVIEW-DEBOLT
PUSKWASKAU
STURGEON LAKE WATERSHED
ECONOMY/ANTE CREEK

Figure 5 RESOURCE MANAGEMENT AREAS

The organizational format for each RMA is the same. A brief introductory preface gives summary information on size, geographical features, topography, surficial geology, vegetation and settlement features. This is followed by a statement of management intent. On the same page, an outline map illustrates the location of the RMA in relation to the planning area as a whole and contains basic information on places and features subsequently referred to in the text. Resources are dealt with alphabetically. Resource management emphases expressed in the management intent statements are reflected in the provisions of the plan. Short resource introductory statements precede the management objectives and guidelines. In each case, a synopsis is given of the status of the resource -- its present use and planned use direction. No priority is implied by the ordering of either management objectives or guidelines.

Because the detailed management objectives and guidelines commonly address interactions between resource sectors, provisions of the plan either have to be repeated, creating much redundancy, or a decision has to be made as to under which resource sector the provision should be housed. Although there are instances where the decision is not clear, there are basically two choices: the resource sector that the provision is designed to benefit, or the resource sector which the provision will most affect. In this plan, the latter has been chosen and the insertion of any provision is done in a manner which recognizes the desirability of successively refining planning provisions.

The following simplified hypothetical example illustrates this point. In an RMA with a timber emphasis, objectives for the Timber and Agriculture sectors respectively state: "To manage coniferous timber for sustained yield" (Objective A) and "To provide improved grazing on capable lands" (Objective B). In the event that team deliberations indicate the feasibility of meeting both objectives in a particular area, there may be an agreement to provide for grazing opportunities subject to demonstrated compatibility with timber values at the operational level. A guideline to this effect would be added under the Timber title and Objective A would be modified to "To manage coniferous timber for sustained yield while providing for grazing opportunities where feasible." Objective B would remain as is and there would a general guideline under the Grazing title ("Identification of lands suitable for improved grazing will take place in a manner compatible with the requirements of other resource uses"), with a cross-reference to the Timber section.

ECONOMY/ANTE CREEK AREA

Introduction

The Economy/Ante Creek area consists of two geographically distinct land areas. The northern, Economy Creek area, covers approximately 56 sections (145 km^2). There is a little meso-relief. Micro-relief is undulating in association with extensive glacio-fluvial and aeolian deposits. Lacustrine deposits are mostly level.

The aeolian materials are characterized by dune formations. Mixedwood forests cover the crests of the dunes, and bogs or small lakes occur in the depressions. The glacio-fluvial and lacustrine deposits are dominated by deciduous forests. The climate is continental with most of the precipitation occurring in the summer.

The Economy Creek area contains a number of small waterbodies and one lake, Ellenwood, which abuts the boundary of the planning area. Economy Creek and the Forestry Trunk Road bisect the area.

The southern, Ante Creek area, covers approximately 50 sections (130 km^2). Topography gradually rises to the north with sharper local relief near the Simonette River. This area is dominated by morainal deposits, with some lacustrine and glacio-fluvial veneers.

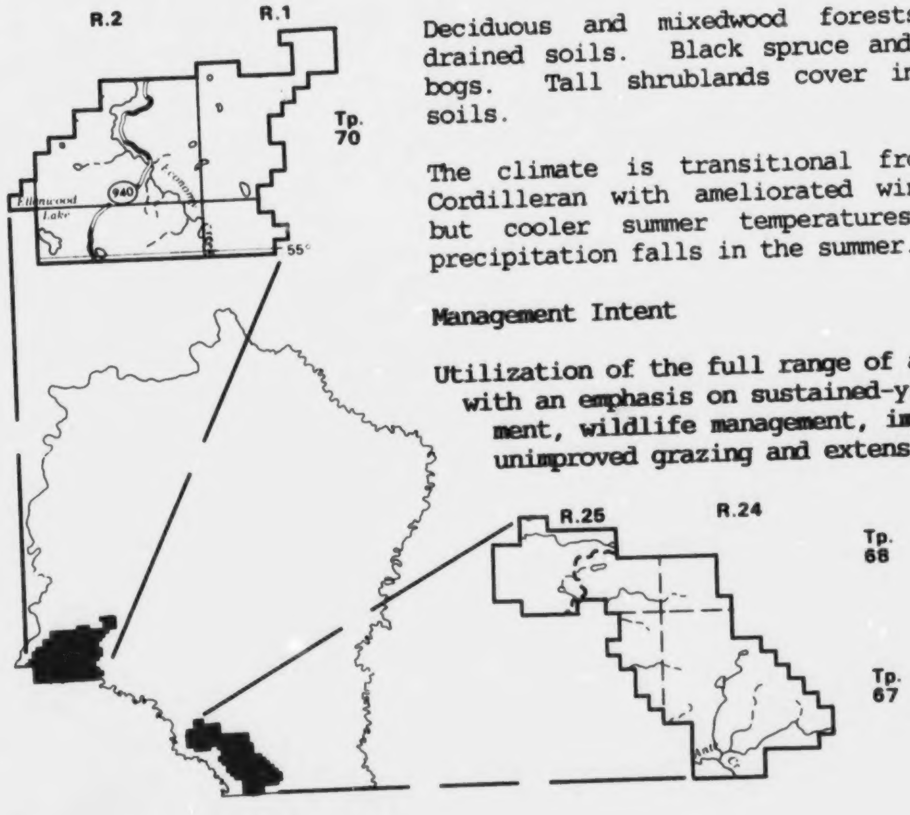
This area is bound by the valley of Simonette River to the west, the Spring Creek area to the north, and the planning area boundary to the south. It abuts the Sturgeon Lake RMA to the east and there are extensive wetland areas adjacent to this boundary. A number of small tributaries of the Simonette drain this area.

Deciduous and mixedwood forests dominate well-drained soils. Black spruce and shrubs cover the bogs. Tall shrublands cover imperfectly drained soils.

The climate is transitional from Continental to Cordilleran with ameliorated winter temperatures, but cooler summer temperatures. Most of the precipitation falls in the summer.

Management Intent

Utilization of the full range of available resources with an emphasis on sustained-yield timber management, wildlife management, improved and unimproved grazing and extensive recreation.



Agriculture

The drainage over a substantial part of the northern block of the planning area is very poor, rendering a large percentage of the area with a low capability for grazing. The lacustrine soils near the southern end of the north block have good access and high grazing capability.

In the southern block of the planning area, most of the land is densely forested and therefore has a low carrying capacity for grazing in its natural state. In the central multiple-use area of emphasis there are sizeable areas not stocked with coniferous trees that are suitable for improved grazing.

Management Objective

To provide supplemental range lands for local residents by increasing the amount of improved and unimproved grazing where potential and demand exist, while recognizing the requirements of other resources.

Management Guidelines

1. The carrying capacity of grazing dispositions may be increased where capacity exists upon the acceptance of an approved range management plan.
2. Preference will be given to forest grazing licences. Land will be retained under Crown ownership. All improved grazing programs must recognize sustained-yield timber management and wildlife values. They will be subject to restrictions or modifications determined necessary by detailed operational planning in order to ensure that impacts on these resources are not significant.
3. Unimproved grazing will be permitted in the creek Conservation areas of emphasis on a very restricted basis in order that the important fish and wildlife habitat and corridor principle are protected. Fencing to prevent access to these creeks will be required for each lease.
4. New grazing development should be phased in such a manner that suitable lands in Conservation areas are disposed of last.

Fisheries

Economy Creek supports a northern pike population. Grayling are known to use the stream, but further evaluations are required to document the extent of use. Ante Creek supports both arctic grayling and bull trout populations. Ellenwood Lake and other small lakes do not support fisheries.

Management Objectives

1. To manage and protect the fisheries of Ante and Economy creeks to ensure that viable fish populations are maintained for recreation.
2. To ensure that water quality and sediment loads in various watercourses are maintained at acceptable levels.

Management Guidelines

See generally applicable fisheries management guidelines, p. 11.

Heritage

Lakeshore environments have been demonstrated to be focal points for prehistoric and historic activities in northern Alberta.

Management Objectives

See the generally applicable heritage management objective on page 13.

Management Guidelines

The Archeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed resource developments affecting lands of high historical resource potential in the vicinity of Ellenwood Lake (30 and S 1/2 31-69-2-W6M, see Figure 3, p. 12).

Minerals

Although limited exploration has failed to find any petroleum and natural gas within either the Economy or Ante blocks, the Cornwall gas field and the Ante Creek North gas field are adjacent to these areas and the potential for natural gas is high.

Management Objective

To provide opportunities for further exploration for petroleum and natural gas.

Recreation and Tourism

The central portion of the Economy Creek area lends itself to cross-country skiing and is within a reasonable driving distance of higher population centres in the Peace country.

The main recreational opportunity in the southern block is hunting. The AFS has identified this area as a possible candidate for the development of snowmobile trails. If the development takes place, it will be tied into existing snowmobile trails which lie to the west of the Simonette River. The AFS has priorized proposed recreation development in accordance to demand, and development of formal facilities for recreation in this RMA is at present of low priority.

Management Objectives

1. To provide the opportunity for cross-country skiing and snowmobiling experiences.
2. To ensure continued opportunities for wildland recreational activities such as hunting, fishing and hiking.
3. To consider opportunities for private-sector recreational development at appropriate locations.

Management Guidelines

1. In long-range planning, the AFS recognizes the potential for cross-country ski trail development in parts of Twp 70, Rges 1 and 2-W6M. It is also recognized that there is a potential for snowmobile trail development in portions of Twp 68, Rges 25 and 26.
2. The Forestry Trunk Road provides touring opportunities, and the potential for associated facility developments is recognized.
3. The level of access to any commercial operations will be dependent on the scale and type of operation, and user demand. On lands within the Conservation area of emphasis, any access development will take place in a manner consistent with the maintenance of areas of important wildlife habitat and environmental value.

Timber

Most lands in the north block of the RMA are of low to moderate forest capability. At present, most timber use consists of post and pole harvesting from the larch and black spruce areas lying between the sand dunes. There is potential for pulp and lumber operations in the future. This area has and will continue to have one of the greatest concentrations of fence post material in the planning area.

Lands in the south block of the RMA have a higher capability for forestry than those in the north block. In fact, most of the area falls in the high capability class.

Most of the growing stock in the RMA is in young age classes. The annual harvest for the next 30 years will be small, but will increase substantially after that time.

Management Objectives

1. To meet community needs for coniferous and deciduous timber through sustained-yield timber management, while considering the requirements of other resources.

2. To provide future replacement lands for areas which have been withdrawn from forest management agreement.

3. To initiate afforestation projects on areas capable of supporting tree growth.

Management Guidelines

1. Timber sales in Miscellaneous Timber Use Areas will be limited to short-term dispositions such as local timber permits (LTPs) and commercial timber permits (CTPs).

2. A portion of the RMA may be assigned to FMA holders at some future date. The government is under obligation to replace lands withdrawn from FMAs for other uses. This area is a prime candidate to be used for replacement purposes.

3. Areas of important wildlife habitat and environmental value will be recognized through the modification of harvesting programs and other forest management activities. Generally, timber management standard operating ground rules will apply. F & W will participate in the review of timber harvesting plans. Particular emphasis will be placed on fluvial lands along Economy and Ante creeks.

Wildlife

The Economy Creek area is a high quality ungulate range. It represents wildlife habitat where excellent winter and summer ranges occur together. The area supports an estimated 200 ungulates.

Concentrations of both moose and elk in this area are of considerable recreational value to residents of Grande Prairie because of the city's proximity.

Much of the Ante Creek unit provides excellent combinations of food, shelter and isolated habitats essential for good ungulate range. The location of large upland areas adjacent to the valley breaks adds to the significance of this wildlife habitat. The area supports an estimated 150 ungulates. This portion of the RMA provides the last land bridge connecting important ungulate ranges in the Sturgeon Lake Watershed RMA with the Simonette River breaks.

Management Objectives

See generally applicable wildlife management objectives, pp. 20-21.

Management Guideline

Any proposed linear utility crossings of the rivers and any permanent access proposals will be referred to F & W.

PUSKWASKAU AREA

Introduction

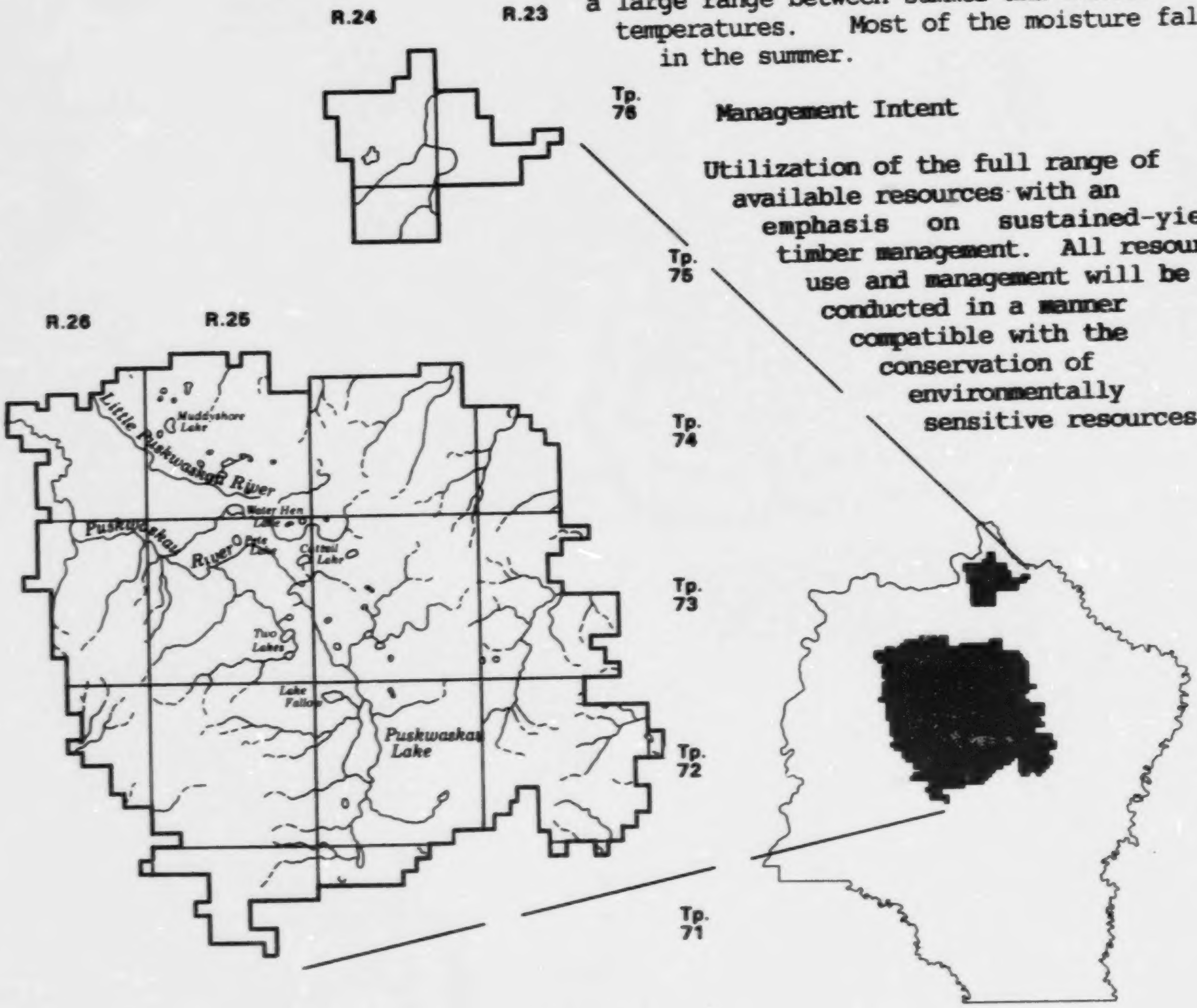
The Puskwaskau RMA comprises two separate areas. The dominant, southern portion contains the Puskwaskau Highlands and is the largest block of Crown land remaining in the planning area, covering about 343 sections (890 km^2). Surficial geology is dominated by tills with a mixture of organics, particularly along the Puskwaskau River. This area has the greatest meso- and micro-relief in the planning area. The land gently rises into two hills on either side of Puskwaskau Lake, then steeply declines on the outside border of the hills. The climate is more continental in the summer, but somewhat cooler than at lower elevations. In the winter, however, temperatures are Cordilleran in character with moderating temperatures.

The Puskwaskau Highlands are dominated by mixedwood forests with a large coniferous component and are the most important timber producing area in the planning area. This area is also noted for its wildlife.

The northern outlier covers approximately 29 sections (75 km^2) and is dominated by undulating sandy aeolian soils and glacial outwash deposits. The vegetation is primarily deciduous, with shrubs and grasses found in depressions. The climate is continental with a large range between summer and winter temperatures. Most of the moisture falls in the summer.

Management Intent

Utilization of the full range of available resources with an emphasis on sustained-yield timber management. All resource use and management will be conducted in a manner compatible with the conservation of environmentally sensitive resources.


R.24
R.23
Tp. 76
Tp. 75
R.26
R.25
Little Puskwaskau River
Muddyshore Lake
Water Hen Lake
Puskwaskau River
Pete Lake
Cattail Lake
Two Lakes
Lake Fallow
Puskwaskau Lake
Tp. 74
Tp. 73
Tp. 72
Tp. 71

Agriculture

The Puskwaskau RMA contains a significant acreage of potentially arable lands, but many individual blocks are small, poorly drained, situated on long slopes, or are inaccessible.

Most lands situated in this RMA have a high capability rating for improved grazing. A considerable amount of the area north of secondary Highway 676 is currently under grazing disposition with the major portion concentrated in Procter and Gamble's Provisional Reserve in the northern portion of the Puskwaskau Highlands. Future areas to be made available for grazing should be easily accessible and contain a low component of coniferous regeneration. Due to existing policy, lands in the FMA area can only be made available for grazing purposes under forest grazing licences. Grazing leases issued in FMA areas are considered to be land withdrawals and are subject to replacement from the nearest available public timber lands.

Most lands in the RMA have a low carrying capacity for unimproved grazing because of dense forest cover.

Management Objectives

1. To recognize the priority of timber interests in this RMA by providing Crown land dispositions only for grazing purposes.
2. To provide supplemental rangelands for local residents on suitable lands by increasing the level of improved and unimproved grazing.
3. To minimize competition for forage between wildlife and cattle in the northern block of this RMA.

Management Guidelines

1. Crown land dispositions will not be made for till cropping.
2. The carrying capacity of grazing dispositions may be increased where potential exists upon the acceptance of an approved range management plan.
3. Only forest grazing licences for unimproved grazing will be permitted in the FMA area.
4. Preference will be given to forest grazing licences in future dispositions on the Procter and Gamble Provisional Reserve to ensure that the intent is compatible should the area come under an FMA.

5. An improved grazing area will be developed in the northern block of the RMA. It will be located on N 1/2 3, all of Sec 10 and 11, LSDs 12 and 13 of Sec 12, LSDs 4 and 5 of Sec 13, S 1/2 14, S 1/2 15-76-24-W5M. The improved area will be approximately 2 400 acres (970 ha) in size and will centre on an existing clearing which is 1 260 acres (510 ha) in size. The development proposal will be referred to F & W. The intent is to maximize the grazing potential of the area while at the same time reducing grazing use in surrounding lands that are of high wildlife value. The improved grazing development may be used to facilitate the relocation of lessees currently engaged in unimproved grazing in the north Puskwaskau wildlife migration corridor.[8].

6. With the exception of the improved grazing development area (G1 5, above), only applications for unimproved grazing (ensuring 50 per cent carry-over) will be considered on remaining lands in the northern block of the RMA.

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[8] Those lands in the Conservation area of emphasis linking the Smoky River breaks and the Puskwaskau Highlands (Figure 9).

Fisheries

There is a small pike fishery on the Puskwaskau River. Other watercourses are generally small or intermittent, and will not sustain sportfish populations.

The lower sections of the streams provide important spring spawning habitat, dependent on years of adequate flow. The mouth areas provide resident sportfish habitat. Increased sediment loading has serious impact on the capability of these areas to support fish.

All lakes in this RMA are too shallow to sustain fisheries.

Management Objectives

1. To ensure the continued viability of the pike fishery in the Puskwaskau River.
2. To ensure that water quality and sediment loads in the various watercourses draining the Puskwaskau Highlands are maintained at acceptable levels.

Management Guideline

Resource developments will take place in a manner consistent with maintaining the Puskwaskau River pike fishery and ensuring prevention of deleterious impacts on the Smoky and Little Smoky river fisheries resulting from poor water quality or high sediment loads in tributary streams.

Heritage

Lakeshore environments have been demonstrated to be focal points for prehistoric and historic activities in northern Alberta.

Management Objectives

See the generally applicable heritage management objective on page 13.

Management Guideline

Culture will participate in the land use referral process to review any proposed resource developments affecting lands of high historical resource potential in the vicinity of Puskwaskau Lake and Lake Fallows (unsurveyed - see Figure 3, p. 12).

Minerals

The Sturgeon Lake oilfield touches the southern edge of the RMA. Although only one successful well (capped gas) and more than 30 unsuccessful exploratory wells have been drilled in this RMA, the potential for oil and gas discovery is good. There are some established reserves of natural gas in the RMA, but presently no production.

Management Objective

To provide opportunities for continued exploration for undiscovered petroleum or natural gas pools and for exploration and development of the petroleum and natural gas associated with the Sturgeon Lake field.

Recreation and Tourism

The Puskwaskau area is the largest block of wildland remaining under Crown ownership in the planning area. There are no developed recreational facilities in this area at the present time and none proposed in the forseeable future. This does not rule out the possibility for future developments.

The area is used for a variety of extensive recreation activities such as hunting, hiking, snowmobiling and cross-country skiing.

Management Objective

To ensure continued opportunities for extensive recreation activities providing wildland recreation experiences.

Management Guidelines

See generally applicable recreation management guidelines on page 15.

Timber

The Puskwaskau RMA is entirely forested to mixedwood, mainly aspen, spruce and pine. Most of the coniferous timber component is located in the main block of the RMA, much of which lies above the 2 500 foot (760 m) contour line and is classified as being in the Boreal-Foothills region.

The small northern portion of the RMA is gently rolling to flat and is predominantly forested to aspen. The better-drained soils in the northern part of the unit are generally sandy and mostly under grazing dispositions at this time. There are, however, substantial areas of poorly drained lands in this northern area.

All that portion of the Green Area (1982 boundaries) in Twp. 73 and south within this RMA are under a forest management agreement with Canadian Forest Products Limited. The company has been granted an annual allowable cut of 25 751 m^3 (6 000 000 fbm). The annual harvest will increase significantly in approximately 30 years time due to the abundance of coniferous regeneration and young growth. This RMA also contains a Miscellaneous Timber Use Area whose annual allowable cut will be determined upon the completion of this plan.

That portion of the RMA in Twp. 74 and north and lying in the Green Area (1982 boundaries) is located in the Provisional Reserve Area of Procter and Gamble Cellulose Limited.

Management Objectives

1. To ensure the productive timber land base is not eroded by uses that are not compatible with forest management.
2. To satisfy a portion of the demand by the local community for timber.
3. To reforest cutover areas and initiate afforestation projects on areas capable of supporting tree growth.

Management Guidelines

1. The Canadian Forest Products Agreement (FMA) will be managed according to the Detailed Forest Management Plan, which was approved in 1983 (Canadian Forest Products Ltd., 1981).
2. Areas of important wildlife habitat and environmental value will be recognized through the modification of harvesting programs and other forest management activities. Generally, timber management standard operating ground rules will apply. F & W will participate in the review of timber harvesting plans. Particular emphasis will be placed on fluvial lands along the Puskwaskau River.

3. Harvesting will take place in accordance with existing ground rules. Cutblock layout will be in accordance with the guidelines outlined in the Timber Harvest Cut Block Design Manual (Henderson, 1977).

4. Forest land productivity will be maintained through reforestation in accordance with Timber Management Regulations (1982, under Forests Act, RSA, F-16, 1980) and through afforestation of non-stocked lands demonstrating a high capability for supporting coniferous species.

5. Other resource uses will recognize the priority of timber interests in this RMA (see Agriculture, pp 52-53).

Watershed

Large muskeg areas on the headwaters of the Puskwaskau River serve as sponge areas which store water and release it slowly to the Puskwaskau system.

Small drainages on the eastern side of the Puskwaskau highlands react quickly to heavy rainfall. If significant land clearing were to take place in this headwaters region, it would likely contribute to flooding of farmlands to the east of the RMA.

Management Objective

To regulate land-use practices and resource developments having potential impacts on sensitive watercourses in order to minimize adverse impacts on water quality.

Management Guideline

Watershed concerns will be recognized by other resource uses in this RMA. With regard to timber management they will be addressed through standard operating ground rules and annual operating plans (see Timber, Gl 2, p. 58).

Wildlife

The Puskwaskau highlands are the largest single block of Crown land in the planning area. Large areas of habitat such as this are essential for sustained harvesting of ungulates and furbearers. This RMA supports about 1000 ungulates, the majority being moose.

The Conservation area of emphasis associated with the upper 6 Puskwaskau River is a significant area for waterfowl and ungulate winter range (moose and mule deer).

The northern outlier of the RMA near the confluence of the Smoky and Little Smoky rivers is very important wildlife habitat, being one of the few remaining areas where a large upland summer range co- exists with high-quality winter range. This area supports an isolated concentration of elk which provide a unique recreational opportunity for the area.

Management Objectives

See generally applicable wildlife management objectives, pp. 20-21.

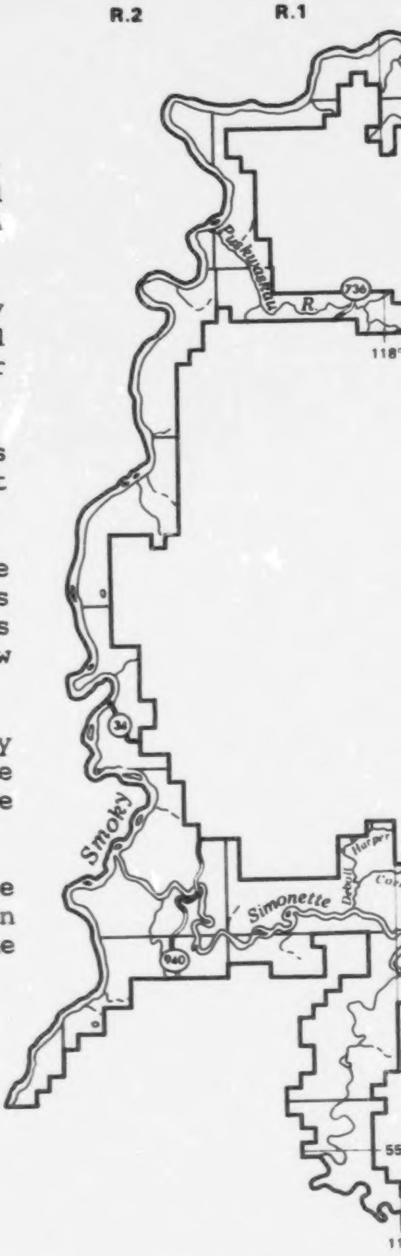
Management Guideline

Moose and elk habitat will be enhanced through habitat development programs.

Rationale

Habitat enhancement is required to compensate for lost land and habitat on the periphery of the RMA.

RIVER CORRIDORS AREA



Introduction

The major river corridors are the most outstanding geo-graphical feature of the sub-region and contain recreational and wildlife resources of provincial significance. This linear RMA encompasses some 355 sections (920 km^2) of land.

The Smoky River is a large V-shaped valley with steep valley walls and as much as 425 feet (130 m) of relief. Terraces and recent floodplains occur adjacent to the valley bottom river meanders.

The Simonette River is generally U-shaped with numerous terraces and floodplains. It also has steep valley walls but with a little less relief than the Smoky River.

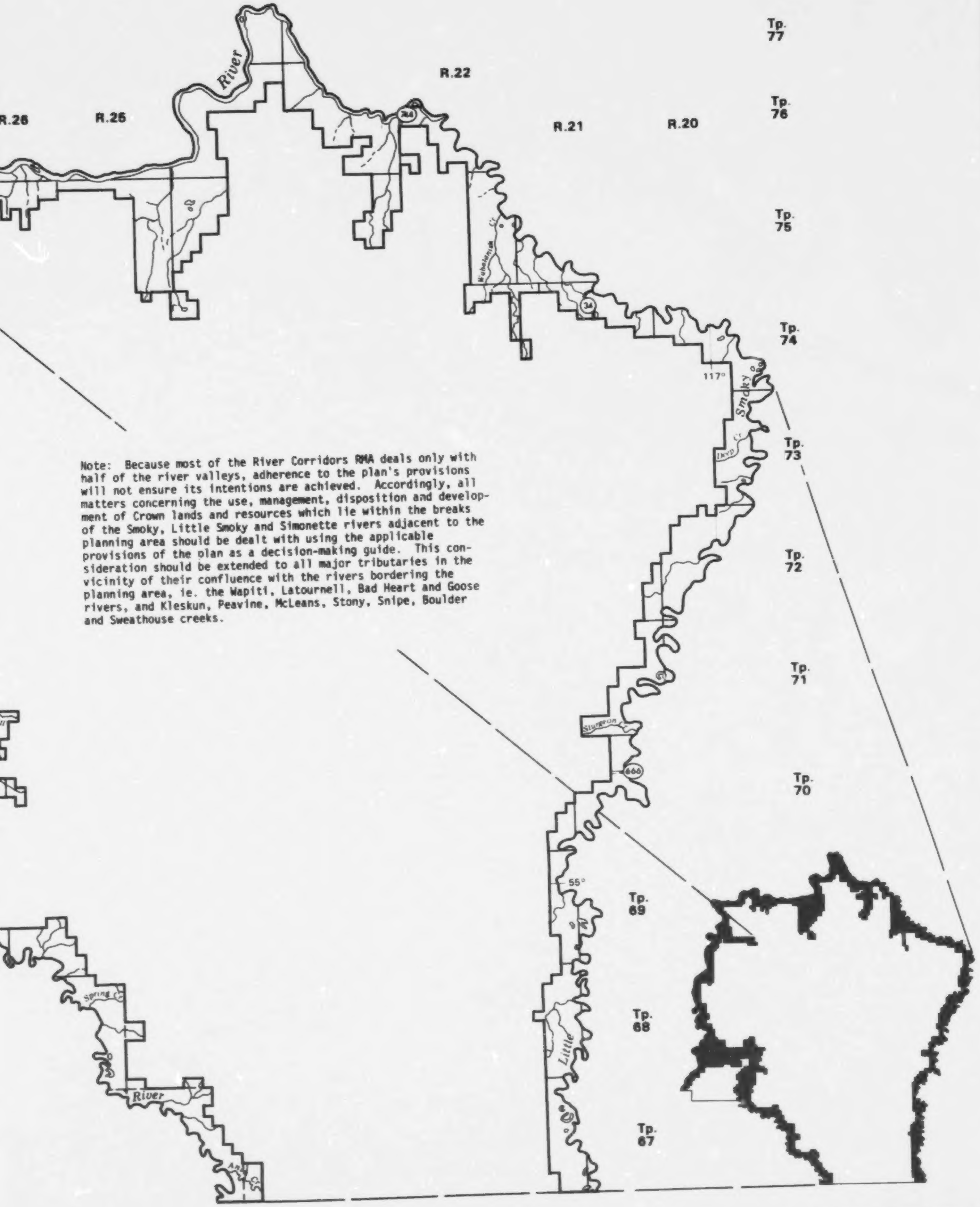
The Little Smoky is V-shaped with pronounced relief in the north part of the planning area. To the south, relief decreases and the river valley becomes more U-shaped. The river has numerous meander scrolls, especially in the areas of low relief.

The vegetation along all the rivers is predominantly deciduous with subdominant spruce cover. Coniferous trees are common along the floodplains and north-facing slopes, or in the wetland areas of the meander scrolls.

The climate of river valleys is distinctive. During the summer, the valley bottom and south-facing walls are often much warmer than other areas. On cold clear nights and in the fall and winter, however, cold air drains into the valleys.

Management Intent

Multiple use management consistent with the conservation of environmentally sensitive resources. Primacy will be given to ensuring the retention of recreational and aesthetic values by: encouraging uses consistent with the existing character of the rivers; supporting significant fisheries and wildlife populations; and preventing problems in riparian areas associated with construction or other development on lands where natural occurrences such as erosion, slumping and flooding occur.


Tp. 77
R.22
R.26
R.25
River
Tp. 76
R.21
R.20
Tp. 75
34
Tp. 74
117°
Smoky
Deep Cr.
Tp. 73
Tp. 72
Tp. 71
Sturgeon Cr.
666
Tp. 70
55°
Tp. 69
Tp. 68
Little
Tp. 67
Spring Cr.
River
Ant Cr.

Note: Because most of the River Corridors RMA deals only with half of the river valleys, adherence to the plan's provisions will not ensure its intentions are achieved. Accordingly, all matters concerning the use, management, disposition and development of Crown lands and resources which lie within the breaks of the Smoky, Little Smoky and Simonette rivers adjacent to the planning area should be dealt with using the applicable provisions of the olan as a decision-making guide. This consideration should be extended to all major tributaries in the vicinity of their confluence with the rivers bordering the planning area, ie. the Wapiti, Latournell, Bad Heart and Goose rivers, and Kleskun, Peavine, McLeans, Stony, Snipe, Boulder and Sweathouse creeks.

Agriculture

A considerable amount of land throughout the RMA is currently disposed of for grazing purposes. While a significant acreage of the remaining land has a high capability for improved grazing, no additional lands will be made available for this purpose in environmentally sensitive areas. Small isolated blocks of lands capable for till cropping have been identified within this RMA adjacent to the valley breaks of the Smoky River. In areas of lesser environmental sensitivity, some of these lands may be made available under cultivation lease.

Management Objectives

1. To maintain the existing level of improved and unimproved domestic grazing throughout the RMA.

2. To permit leasehold cultivation or grazing on peripheral portions of the RMA which do not have high recreational, watershed or wildlife significance.

Management Guidelines

1. Grazing dispositions will not be permitted within the north Puskwaskau wildlife migration corridor. Relocation of existing lessees will be conducted in a manner that recognizes existing improvements made and retains the carrying capacity of existing dispositions. The following measures will be employed to accomplish this:

   -- providing replacement lands of equivalent capability on less sensitive lands (see Gl 5, p. 53); or
   -- allowing compensating range improvement and providing assistance on portions of the disposition remaining outside the wildlife migration corridor.

2. Upon acceptance of approved development plans, lands of high capability for crop production meeting all the following criteria will be made available under cultivation leases only with no option to purchase for cultivation purposes:

   -- detailed site inventories must demonstrate a soil rating schedule index of 30 or more;
   -- lands lie in White Area;
   -- lands lie above and beyond river breaks; and
   -- lands lie outside areas having high recreational, watershed or wildlife values.

3. Appropriate land-use reservations will be maintained in order to preserve sites identified as being environmentally sensitive in order to ensure that overgrazing, erosion and localized slope instabilities do not occur on steep slopes.

4. Dispositions leading to sale will not be permitted.

5. The assigning or reissuing of existing grazing leases will be permitted, but no new grazing dispositions will be issued.

6. Range improvement on areas other than those with presently approved range development plans, will be considered within the intent of the management objectives. The overall carrying capacity is not to be increased. Range improvement is to be primarily considered for purposes of solving distribution problems and reducing grazing on sensitive areas.

   Any modification to existing approved range development plans will be considered as outlined above.

7. On leases subject to deletions at time of renewal due to environmental sensitivity or critical wildlife habitats, lease grazing capacity will be maintained by improved grazing only upon acceptance of approved development plans.

Rationale

Gl 1. The limited size of the north Puskwaskau migration corridor necessitates the phasing out of grazing dispositions in order to facilitate ungulate movements, remove behavioural competition with domestic animals, and ensure the continued availability of quality habitat. Adjacent replacement lands have been identified for lessees (see Gl 5, p. 53).

Gl 2. Some lands with ELC soil index ratings of 30 or more located on the edge of the RMA will be made available for cultivation leases. This is permissible because resource allocations were mapped on a legals basis. Accordingly, there are a few peripheral areas where it is possible to permit till cropping while retaining environmentally sensitive and important habitat lands in Crown ownership.

Fisheries

The Smoky, Little Smoky and Simonette rivers support northern pike, walleye, goldeye, arctic grayling, Rocky Mountain whitefish and Bull trout populations. Numerous species migrate lengthy distances in these rivers, and up tributary streams, to overwintering and spawning sites.

Angling is limited by access and is generally light. Most sportfishing is concentrated near the mouths of tributary creeks, habitat commonly used by most fish species.

Mountain Lake has been identified as a potential site for future stocking pending further evaluations and development of access. The lake has been stocked once, but did not overwinter. All other lakes in the area are too shallow to sustain fisheries.

Management Objectives

See generally applicable fisheries management objectives on page 10.

Management Guidelines

1. Restrictions on resource development may be applied in order to prevent deleterious impacts from poor water quality or high sediment loads on important fisheries habitat in the rivers (see Agriculture, pp. 65-66; Minerals p. 69; and Timber p. 72).

2. Mountain Lake is being studied for its development potential. Winter oxygen levels will be monitored and there may be future annual stocking with trout, contingent on the development of access.

Heritage

The three river systems in this RMA are considered to have a very high potential for the discovery of historical resource sites.

Both prehistoric and historic archaeological resources in northern Alberta are known to be closely associated with both riverine and lakeshore environments, a trend which has been confirmed by initial investigations in the planning area. A number of palaeontological sites have been recorded in the RMA and much of the area is considered to have high potential for the discovery of additional sites.

Management Objectives

See the generally applicable heritage management objective on page 13.

Management Guideline

Culture will participate in the land use referral process, to review any proposed resource developments affecting riparian lands of high historical resource potential (see Figure 3, p. 12).

Minerals

The RMA encompass large portions of four petroleum and natural gas fields: 55 per cent of the Cornwall field (with one capped gas well) in the southwestern corridor; 33 per cent of the Little Smoky field and 10 per cent of the Sturgeon Lake South field (with one gas well, one capped gas well and 40 oil wells) in the southeastern corridor; and 45 per cent of the Valleyview field (with one gas well) in the northeastern corridor. Production of petroleum and natural gas is estimated at 220 000 m^3 and 40 million m^3 while reserves are 2 million m^3 and 1.5 billion m^3 respectively.

Management Objective

To provide opportunities for exploration and continued development of the petroleum and natural gas resources of the RMA.

Management Guidelines

1. Minerals exploration and development activities will occur where they do not cause significant soil erosion, do not have negative impact on wildlife and/or fisheries, do not impair aesthetics (out of line-of-site from the rivers) and are not subject to impacts of flooding.

2. Special measures may be required to minimize impacts on wildlife movements in the North Puskwaskau migration corridor. Options include:

   -- directional drilling;
   -- restrictions on or the exclusion of minerals exploration and development activities in defined areas; and
   -- restrictions on the extent, location and type of gathering and production systems (see also Wildlife, p. 76).

Rationale

The ability to manage closely or even prohibit minerals exploration and development activities within the river valleys varies with the mineral resource. Measures in place to address petroleum and natural gas activities are not as comprehensive, for example, as those existing for quarriable and metallic minerals. Discretionary measures are required in order to render achievable the expressed management intentions for the priorized resources in this RMA.

Recreation and Tourism

The river canyons are the aesthetic highlights of the planning area. They provide a unique and distinctive environmental resource traversing the entire sub-region. The Smoky, Simonette and Puskwaskau rivers have a definite wildland character, while portions of the Little Smoky River present a more settled ambiance. The rivers create exceptional recreational opportunities for a variety of extensive recreational pursuits. Boating, fishing and hiking are the most popular activities.

There was an AFS campground on the Simonette River that was completely destroyed by flooding in August, 1987. There is a day-use area on the Highway 34 crossing of the Smoky River, which is gradually being upgraded to a campground. A new boat launching facility has recently been constructed at this site. The Town of Falher operates a skihill, toboggan run and cross-country ski trail area on a 416 acre (168 ha) lease on the left bank of the Little Smoky River at the Highway 34 crossing. Good access to much of the Little Smoky River encourages various types of use at a number of locations. Notable are an informal camping area on the old High Prairie road and annual raft races held by PNG companies in the area south of Valleyview. This river is also used for canoeing and rafting by various organized school groups.

The Great Canadian Smoky Marathon River race is a national event held annually in June/July. Every fourth year the World Championship race is held.

Management Objectives

1. To provide primitive public recreational developments associated with boating, hunting, hiking and fishing at appropriate locations throughout the river system.

2. To provide riparian camping facilities for the highway traveller.

3. To consider opportunities for private-sector recreational development at appropriate locations, recognizing Highway 34 as the primary focus for highway commercial development and touring opportunities.

Management Guidelines

1. Camping facilities for the highway traveller have been and will continue to be provided at the Smoky River (16-72-6-W5M) and Waskahigan (36-66-22-W5M) campgrounds. In recent years the Smoky River site has been used as a day-use area, but within five years it will be transformed into an overnight camping facility. The Waskahigan site is just outside the boundary of

the planning area; however, planned hiking trails associated with this development fall within the RMA.

2. Long-range planning has identified three areas as suitable for the development of primitive camping facilities for boaters as follows:

    i) Right bank of the Smoky River, opposite the confluence with the Wapiti River (that portion of 7-71-2-W6M lying east of the Smoky River);
    ii) Right bank of the Smoky River in the vicinity of the confluence with the Puskwaskau River (those portions of W 1/2 7-75-1-W6M and S 1/2 12-75-2-W6M lying east and south of the Smoky River); and
    iii) Right bank of the Smoky River north of the north Puskwaskau wildlife migration corridor (those portions of unsurveyed N 1/2 19, N 1/2 20, NW 21, SW 28, 29 and 30-76-24-W5M lying south and east of the Smoky River).

    There will be no roads to these facilities and servicing will be by helicopter or boat. Development of formal facilities is at present of low priority.

    Prior to any development of sites (i) and (ii), a Historical Resources Impact Assessment will be undertaken. Any development will occur in a manner consistent with the conservation of historical resources.

3. The level of access to any commercial operations will be dependent on the scale and type of operation, and user demand. Any access development will take place in a manner consistent with the maintenance of areas of important wildlife habitat and environmental value.

4. Day-use and hand-launch boat facilities and a parking lot will be developed near Mountain Lake (SW36-74-25-W5M).

Timber

The River Corridors RMA has most of its timber located in isolated patches, generally near rivers with a considerable amount being on steep slopes. Much of the timber is adjacent to existing or proposed farming areas and will provide a long-term limited supply of forest products for local people. This is a desirable feature for farm communities. In addition to a supply of wood products, the forest also has many other attractions, such as providing for recreational pursuits, wildlife habitat, scenic attraction, etc...

A portion of the timber resource falls within both the Procter and Gamble Provisional Reserve Area and the FMA area and must be managed in a manner compatible with the appropriate agreement (O/C 1/69).

Management Objective

To provide a supply of primary forest products for use by local residents while recognizing areas of important wildlife habitat and environmental value.

Management Guidelines

1. Harvesting programs and other forest management activities will be modified as necessary in order to recognize areas of important wildlife habitat and environmental value. The following guidelines will apply:

   -- timber will not be harvested where the topography is too steep and unstable to permit logging using present harvesting systems. These stands will be specified in the operating plans;
   -- a combination of selective harvesting and limited clear cutting will be permitted within 110 yards (100 m) of the valley breaks; and
   -- all proposals for timber harvesting operations or combination of operations with clearcut areas of 10 acres (four ha) or larger will be referred to F & W.

2. Timber sales in the White Area will be limited to small short-term dispositions, such as LTPs and CTPs.

3. Two different blocks of land containing significant amounts of timber have been identified as Community Farm Woodlots (Figure 9). These lands will remain in Crown ownership in the White Area and are to be reserved under indefinite timber reservations. They will be managed under sustained yield to meet a portion of the local community timber requirements.

Rationale

Gl 3. Traditionally, sustained yield timber management has not been practised in the White Area. Up until now, timbered areas have been held under short term timber reservations which have not provided the tenure necessary for effective management. This has generally led to a steady erosion and liquidation of woodlot lands. It has not been a practise to reforest cut-over lands in the White Area. As a consequence there have been many awkward jurisdictional splits between Public Lands Division and the Alberta Forest Service in an attempt to include all lands proposed for sustained yield timber management in the Green Area. There should be no reason why timber cannot be managed (including reforesting of cut-overs) in the White area provided that all interested parties agree to permit and honour indefinite timber reservations.

Watershed

All the rivers and the large creeks have steep canyon banks. Fluvial erosional processes are extraordinarily active and there are numerous natural occurrences of slumping and mass wasting. These occurrences contribute to the sediment loads of these waters.

Management Objective

To regulate land-use practices and resource developments having potential impacts on riparian lands susceptible to disturbance.

Management Guideline

There will be an assessment of the potential impacts of development proposals, involving the inspection and analysis of site characteristics such as terrain sensitivity. Adequate buffers and setbacks will be required for all activities which potentially affect sensitive watersheds. Developments having significant and unavoidable impacts will not be permitted (see Agriculture, pp. 65-66; Minerals, p. 69; and Timber, p. 72).

Wildlife

The large river valleys provide a unique wilderness environment that traverses the entire subregion. They are exceptional recreational identities that sustain a variety of wildlife and provide diverse hunting and recreational experiences of provincial importance.

The valleys and immediate uplands provide all the essential aspects for ungulate winter range, while both the valleys and uplands provide excellent summer range.

Migratory birds (in particular eagles, hawks, geese and shorebirds), and furbearers use the large river corridors extensively.

Important elk ranges are located along the Simonette River, portions of the Smoky River, and at the confluence of the Smoky and Little Smoky rivers. Mule and whitetail deer concentrate in the Puskwaskau and lower Simonette river areas and are relatively abundant along the Smoky. Moose occur abundantly along this entire corridor system. Lands adjacent to the Puskwaskau River and the north Puskwaskau wildlife migration corridor are important travel corridors linking the Puskwaskau highlands to the river corridors.

Portions of this RMA are under grazing disposition. Grazing adversely affects the capability of habitat to support wildlife populations, primarily through behavioral competition and competition for food resources.

Management Objective

To maintain uninhibited ungulate passage and continuity of habitat in the north Puskwaskau wildlife migration corridor.

Management Guidelines

1. The management and development of resources will take place in a manner which ensures that the river valleys and immediate uplands maintain their value for wildlife utilization, including ungulate winter range. Modifications to resource exploration, development or management activities will be required as necessary in order to ensure the maintenance of important wildlife habitats and to mitigate potential impacts on the wildlife resource (see Agriculture, pp. 65-66; Minerals, p. 69; and Timber; p. 72).

2. Highway 646 (Whitemud) will be the only permanent road permitted to traverse the north Puskwaskau wildlife migration corridor. Proposals for any other linear infrastructure developments will be referred to F & W. Providing the function of the corridor is not compromised, attempts will be made to accommodate necessary developments while minimizing impacts. Various management options are available, including, but not limited to:

   - seasonal time allotments on development activities and access;
   - the use of gates or other access control measures; and
   - concentrating any roads or trails in peripheral parts of the corridor (see Minerals, p. 69).

3. Any proposed linear utility crossings of the rivers and any permanent access proposals will be referred to F & W.

4. Habitat for elk and moose near the valley breaks and on the river flats will be enhanced both by initiating habitat development programs and purchasing key parcels of land.

Rationale

Gl 2 & 3. The minimization of linear crossings is essential in facilitating unimpeded ungulate movements and ensuring solitude requirements are met. This is especially important in the north Puskwaskau migration corridor.

STURGEON LAKE WATERSHED AREA

Introduction

The Sturgeon Lake watershed encompasses about 240 sections (620 km^2). Most of the surficial materials immediately surrounding the Sturgeon Lake are composed of lacustrine blankets and veneers. These areas have low relief and gently slope toward the lake. The landscape around Williamson Provincial Park and Sturgeon Heights has greater relief and is dominated by morainal deposits. Calcareous residual deposits covers Young's Point and a portion of the north shore of the west arm of Sturgeon Lake.

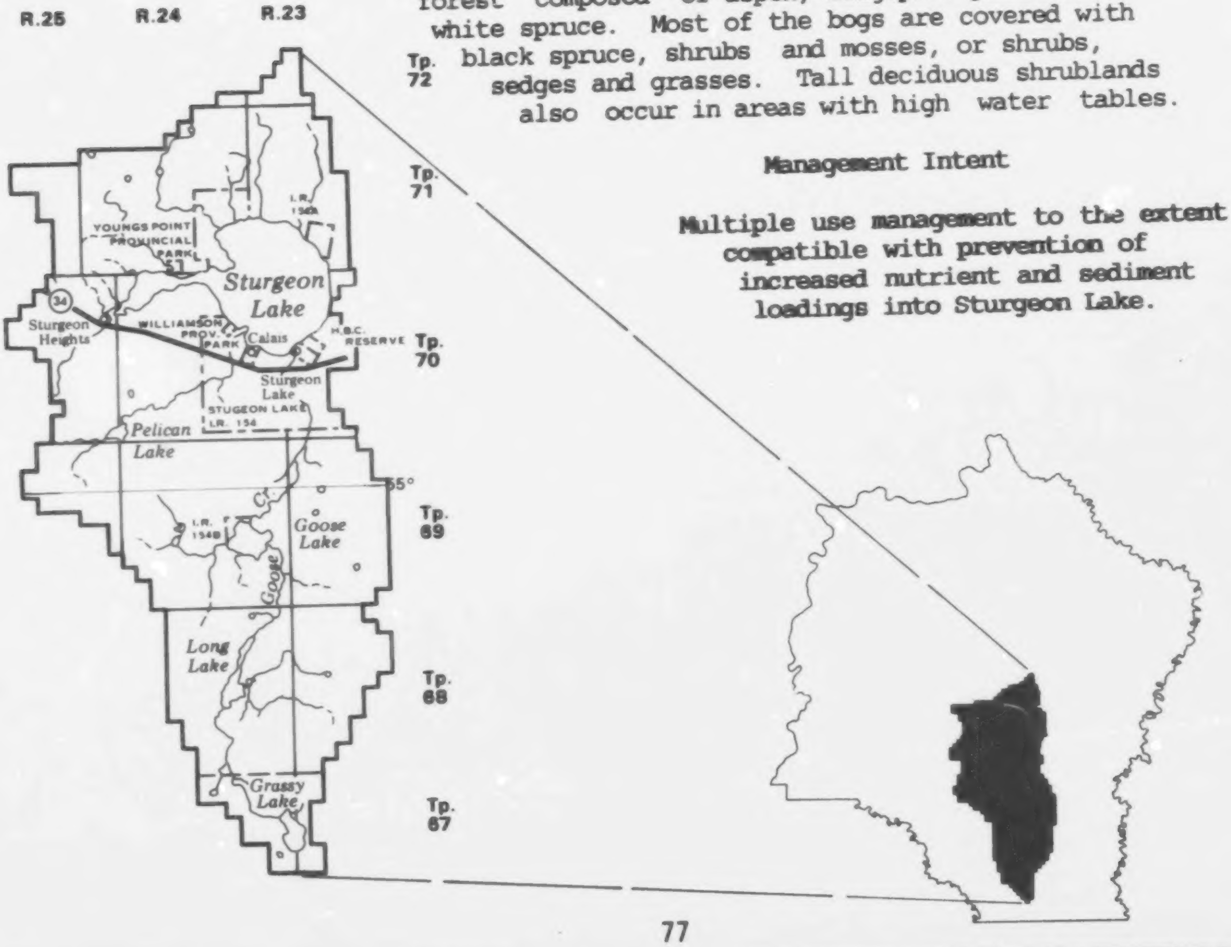
The remaining land in the watershed is composed of moraine often with discontinuous lacustrine veneers and blankets. Organics can be found in depressions throughout the watershed. To the north of the lake the terrain steepens considerably toward the Puskwaskau Tower, but is mostly gently rolling in other areas.

A number of small streams flow into Sturgeon Lake off steep slopes and from depressions and small lakes. Sturgeon Creek flows out of Sturgeon Lake and east to the Little Smoky. Goose Creek flows from Grassy Lake through Long and Goose Lakes to Sturgeon Lake.

The vegetation changes in response to surficial materials and relief. Deciduous forests of aspen and balsam poplar predominate on lacustrine soils. With increasing slope and elevation, and increasing morainal deposits, the vegetation changes to a mixedwood forest composed of aspen, lodgepole pine and white spruce. Most of the bogs are covered with black spruce, shrubs and mosses, or shrubs, sedges and grasses. Tall deciduous shrublands also occur in areas with high water tables.

Management Intent

Multiple use management to the extent compatible with prevention of increased nutrient and sediment loadings into Sturgeon Lake.


R.25
R.24
R.23
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
I.R. 154A
YOUNGS POINT PROVINCIAL PARK
51
Sturgeon Lake
34
Sturgeon Heights
WILLIAMSON PROV. PARK
Calais
H.B.C. RESERVE
Sturgeon Lake
STUGEON LAKE I.R. 154
Pelican Lake
55°
I.R. 154B
Goose Cr.
Goose Lake
Long Lake
Grassy Lake

Agriculture

Approximately 46 sections of land in the RMA are deeded at present, the majority of this being located around the west arm of Sturgeon Lake. Significant amounts of potentially arable land are located throughout the RMA, mostly south of Highway 34. Forage production is likely the most suitable agricultural use for these lands.

The potentially arable lands are found on undulating to very gently rolling moraines, with varying types of cover, the dominant species being poplar. North of Sturgeon Lake, lands of agricultural potential occur on long, fairly steep slopes.

The Valleyview Provincial Grazing Reserve is the most significant agricultural development in the RMA. Approximately 2/3 of the grazing reserve is located in the watershed area. It is a major source of improved grazing to livestock producers in the planning area, with demand increasing.

A portion of this RMA lies within Canadian Forest Products Forest Management Agreement area. Lands in FMAs can be made available for grazing under the authority of forest grazing licences.

Management Objectives

1. To maintain the existing level of improved grazing on all Crown lands outside the Valleyview Grazing Reserve.
2. To provide additional unimproved grazing opportunities for local residents on suitable lands while recognizing the priority of watershed concerns.
3. To encourage continued development of the Valleyview Grazing Reserve in sustaining viable grazing programs within slightly expanded boundaries, while recognizing the priority of watershed concerns.
4. To provide future access linking the existing Valleyview Grazing Reserve and the proposed large scale improved grazing area (potential future Grazing Reserve) in Spring Creek.

Management Guidelines

1. Only applications for unimproved grazing licences will be considered. Dispositions will only be issued where viable units exist. Management plans must stipulate measures providing for grass carry-over. Till cropping will not be permitted.

2. No further clearing is to take place on existing grazing dispositions, but maintenance of existing grazing improvements will be permitted.

3. Dispositions for grazing will not be issued on lands adjacent to Sturgeon Lake (SW17, S 1/2 8, ptns. N 1/2 7 and NW 8-71-24-W5M).

4. New grazing dispositions will not be issued within riparian corridors adjacent to Goose and Pelican Creeks and their associated waterbodies. The boundaries of these corridors will be delineated at the operational level to ensure cattle will not have access to environmentally sensitive areas.

5. Streambank fencing and development of alternate watering site programs will be initiated through the Buck for Wildlife program on lands adjacent to Goose Creek that are currently impacted by grazing (private and public lands already under disposition).

6. Access linkage between grazing developments in Spring Creek and the Valleyview Grazing Reserve will entail construction of a bridge crossing Goose Creek and an associated road or trail. Mitigative construction and design measures to minimize sedimentation will be given the highest priority. The alignment will not be restricted to a legal road allowance. Environment and F & W will be referred on the proposal.

7. The first major plan review will assess the desireability of amalgamating the existing Valleyview Grazing Reserve with the proposed large scale grazing area in Spring Creek. The intent would be to allow some improved grazing development within the Sturgeon Lake watershed on lands west of Long Lake, while avoiding any development in hydrologically active areas. No resource use commitments will be made in the interim that might prejudice such possible future use.

Rationale

Gl 1 & 2. Minimizing additional nutrient loadings to the lake will extend the "useful" life of the lake. Large areas are required to support unimproved grazing. Such areas must be reasonably productive in order to minimize costs to the producer.

Over time, some degree of re-clearing of improvements and reseeding of improved pastures are required to maintain a satisfactory level of grazing use.

Gl 4. This guideline will ensure that neither water quality nor fisheries are impaired by increased nutrient and sediment loadings attributable to the presence of cattle in sensitive riparian areas.

Fisheries

Sturgeon Lake supports an extremely valuable fishery and recreation resource. The lake suffers from nutrient enrichment, and any activities that may accelerate this process must be abated.

Numerous small tributaries drain about 35 per cent of the watershed to the north and west of Sturgeon Lake. None, however, support significant fisheries.

The Goose and Pelican Creek drainage network drains approximately 65 per cent of the watershed, and as a result is the most significant area being addressed that may potentially impact the water quality and fisheries of the lake.

The creek itself provides spawning habitat for the major sportfish populations of Sturgeon Lake, and is therefore categorized as critical habitat. The walleye population of Sturgeon lake utilize the lower portion of Goose Creek for spawning. Northern pike also inhabit and spawn throughout the entire length of Goose Creek. A significant proportion of the pike migrants are Sturgeon Lake fish. The fisheries habitat quality increases steadily from Grassy Lake toward Sturgeon Lake.

Pelican Creek supports a localized northern pike spawning run. Spawning takes place in the lower section of stream.

Management Objectives

1. To ensure water quality and sediment loads in the various watercourses draining the Sturgeon watershed are maintained at acceptable levels.
2. To maintain, protect and enhance the walleye and northern pike spawning habitat and populations.
3. To minimize nutrient enrichment and siltation of Goose Creek and Sturgeon Lake.
4. To develop and maintain a riparian corridor zone along the entire length of Goose and Pelican Creeks.

Management Guidelines

1. Restrictions on resource development may be applied in order to prevent additional sediment or nutrient loads from entering Sturgeon Lake (see Agriculture pp.78-79, Minerals p.84, Timber p.87-88; Watershed p.90).

2. All proposed linear crossings of Goose Creek should be referred to Fish and Wildlife. The number of roads crossing Goose Creek should be minimized, crossings will be directed to sites upstream of Goose Lake. All permanent crossings will utilize bridges, however, winter crossings constructed by snow and ice will be permitted on a site-specific basis.

Heritage

Lakeshore environments have been demonstrated to be focal points for prehistoric and historic activities in northern Alberta. Archaeological research in the planning area has confirmed the existence of lakeshore sites of historical significance in this RMA.

Management Objective

See the generally applicable heritage management objective on p. 13.

Management Guideline

Culture will participate in the land-use referral process to review any proposed resource developments affecting riparian lands of high historical resource potential (see Figure 3, p. 12).

Minerals

Parts of the Calais gas field and of the Sturgeon Lake and Sturgeon Lake South oil fields fall within the northern portion of this RMA. There is one gas well, 18 oil wells and one gas processing plant located here. Reserves of petroleum and natural gas in 1984 are estimated to be 0.5 million m^3 and 1.3 billion m^3 respectively, while yearly production is approximately 77 000 m^3 and 45 X 106 m^3.

Management Objective

To provide opportunities for exploration and continued development of the petroleum and natural gas resources of the RMA.

Management Guideline

Minerals exploration and development activities will occur where they do not result in the contribution of increased sediment or nutrient loads to Sturgeon Lake.

Recreation and Tourism

Sturgeon Lake is a local/regional destination point for recreationists and tourists. Water-based recreation activities include boating, fishing, waterskiing and swimming, with fishing being the main attraction. Adjacent to the lakeshore are two provincial parks, one private campground, and a campground owned by the Indian band. There are three cottage developments on Sturgeon Lake with a combined total of 164 approved and surveyed lots and about 125 private cottages or mobile homes.

There is some Crown land on the north shore, but most lakeshore lands with any potential for additional tourism and recreation developments are either patent or Indian lands.

Water quality is a key concern in Sturgeon Lake because the lake is eutrophic and any increased nutrient inputs will lead to a further decline in water quality, which in turn will detract from the recreational value of the lake. This is a key concern as there is no alternative lake in the Peace Country which is capable of catering to the same amount and variety of recreational and tourist use.

Highway 34, a major traffic corridor in the planning area, traverses this RMA. There may be potential for developing self-guided ecological/cultural driving brochures for Highway 34; potential developments associated with this could be scenic vehicle pull-off and day-use/picnic areas.

Management Objectives

1. To ensure continued opportunities for wildland recreational activities such as hunting, fishing and hiking.
2. To consider the disposition of public land for commercial private sector tourism and recreational developments.
3. To recognize Highway 34 as the primary focus for highway commercial development and touring opportunities within this RMA.
4. To ensure the continued provision of intensive recreational opportunities for the public.

Management Guidelines

1. Proposed tourism and recreation developments will be considered. Planning advice will be provided to help ensure that environmental quality and aesthetics are maintained. Careful design of facilities to limit environmental impact, and encouraging environmentally conscious operation of services and facilities after their complection will be stressed. Encouragement will be given to those opportunities that ensure that the water quality of Sturgeon Lake is

not impaired. Development proposals entailing unavoidable impacts on water quality would require a major plan amendment.

2. Replacement and upgrading of facilities will be undertaken at Youngs Point and Williamson provincial parks as required to maintain levels of service.

3. Expansion of facilities will be considered at Youngs Point if warranted in response to increasing demand.

4. Any development and use of facilities will take place in a manner which does not result in the contribution of increased sediment or nutrient loads to Sturgeon Lake.

Timber

Crown lands within the Sturgeon Lake RMA are forested in mixed stands with the predominant species being aspen. Recent logging operations are largely confined to a small area in the northwest corner of the RMA. The logging has been conducted by Canfor in approximately the last 10 years. Small-scale miscellaneous timber cutting has taken place, but volumes extracted have been very small. The majority of the existing coniferous stands in the Sturgeon Basin are under 50 years of age, therefore coniferous logging will be on a small scale for a long period of time. There is a large volume of harvestable-size aspen, but at this time there is little market for it. This area has excellent potential for small-scale harvesting of aspen, should markets develop.

The AAC for timber will be calculated when the forest land base is stabilized upon approval of this plan.

Management Objectives

To supply a portion of the community needs for coniferous and deciduous timber through sustained-yield management, while considering the requirements of other resources.

Management Guidelines

1. That portion of the Canadian Forest Products Ltd. FMA located within the RMA will be managed according to the Detailed Forest Management Plan, (Canadian Forest Products Ltd., 1981) approved in 1983.

2. In general, timber harvesting on lands outside the Canadian Forest Products Ltd. FMA will be conducted in accordance with Timber Management Planning and Harvesting Operating Ground Rules. In some instances it will be necessary to recognize the special sensitivity of this watershed by modifying harvesting programs and other forest management activities. The following are examples of modifications that may be appropriate:

   - Winter logging only on sensitive sites;
   - Minimizing the number of road crossings on watercourses;
   - Minimizing the amount of bared areas associated with road construction by restricting development to class V roads for access during frozen periods; and
   - Limiting the amount of surface disturbance in reforestation programs on sensitive sites. Examples are spot scarification instead of continuous blade scarification. In some areas it may be necessary to limit disturbance to hand scalping and hand planting.

3. All proposals for timber harvesting operations or combinations of operations with clearcut areas of 10 acres (four ha) or larger will be referred to Fish and Wildlife.

4. Forest land productivity will be maintained through reforestation in accordance with Timber Management Regulations (1982, under Forests Act, RSA, F-16, 1980).

Watershed

From a regional point of view, compared to the rest of Alberta, the Peace Country has few good lakes and even fewer of these are well placed to serve regional needs. However, these scarce resources provide virtually the only opportunities for people in the region to pursue intensive water-based recreation activities. Sturgeon Lake is widely acknowledged as the best lake in the Peace Country for a variety of water-based recreation purposes (Peace River Regional Planning Commission, 1975).

Reflecting this importance are the type and amount of recreational uses the lake receives and the number and variety of facilities present (p. 85).

The South Peace Regional Plan identifies Sturgeon Lake and Goose Creek as regionally significant environmental areas.

Water quality data collected over the years indicate that Sturgeon Lake is eutrophic. The high productivity of the lake has resulted in a good fishery resource. This high productivity also results in periodic fish kills. These would occur more frequently if the nutrient loading into the lake were to be increased.

Land use in the drainage basin directly influences nutrient and sediment loads entering the hydrologic system. Mixed agriculture will produce at least five times the nutrient loadings as compared to those from forested lands. Nutrient releases from crop land would be even higher.

The key question of land use in the Sturgeon Lake watershed is the capability of Sturgeon Lake to absorb increased nutrient loads without serious water-quality degradation. Because Sturgeon Lake is a vital and virtually irreplacable recreation resource for the southern Peace Region, both land and water management decisions should reflect the uncertainties involved in quantification of eutrophication and its predictions. It is known qualitatively that further land clearing in the watershed will produce an increase in the algal productivity of the lake with consequent deterioration of the recreation resource.

The implications of changing land uses are exemplified by Bear Lake, just west of Grande Prairie. This lake was a favorite recreation lake when the area was first opened up in the early part of the century. Fishing was good and Bear Creek was used as a water supply for the town. The drainage basin is now a well developed agricultural area. The lake no longer rates as having any significant recreational value and Bear Creek flows brown with high sediment loads. Creek flows are now intermittent in nature. Massive land use changes in the basin to intensive agriculture use are suspected of having modified the temporal runoff distribution, resulting in longer periods of very low to zero runoff from the watershed.

Management Objectives

1. To retain as much of the watershed as possible under forest and grass cover[9] to minimize nutrient loadings to Sturgeon Lake.

2. To regulate land-use practices and resource developments which could result in increased sediment loadings to Sturgeon Lake.

Management Guidelines

1. The potential impacts of resource industries on the long-term water quality of Sturgeon Lake will be assessed. Special operating guidelines will be formulated for acceptable activities.

2. Existing Crown lands will not be sold.

Rationale

Obj. 1 By maintaining the existing forest cover, the public lands north of Hwy 34 can be managed (with special considerations) as an extension of the Puskwaskau RMA to the north.

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[9] Including forest cut-over areas which have been minimally disturbed.

Wildlife

The Sturgeon Lake Watershed is a large block of important wildlife habitat. Large areas of habitat are essential for the maintenance of viable wildlife populations. The area supports a good population of moose, and provides a vital upland habitat between major river valleys. Important wildlife areas have been identified along most of Goose Creek, except around Long Lake.

Lands close to Sturgeon lake are an important wintering area. Petroleum and natural gas activity has significantly increased the amount of access to this area in recent years and harvest levels of moose have also risen as a result. The Sturgeon Lake band uses this area for hunting.

Management Objectives

1. To maintain the diversity of both vegetational composition and successional stages.
2. To improve wildlife habitat in the area east of Long Lake.

Management Guidelines

1. Moose habitat will be enhanced through habitat development programs.
2. The Fish and Wildlife Division will encourage the use of timber harvesting and silviculture practices that are complimentary wildlife habitat.

VALLEYVIEW - DEBOLT AREA

Introduction

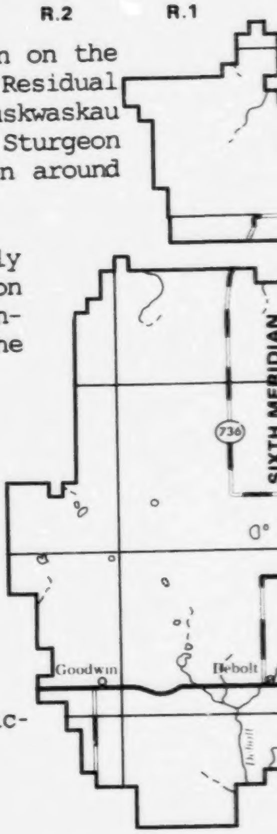
Comprising an area of approximately 1110 sections (2875 km^2), the Valleyview-DeBolt Area is by far the largest RMA and dominates the planning area. Relief is flat to gently rolling with a considerable percentage of lacustrine veneers and blankets.

Morainal deposits, sometimes covered with sandy veneers, are common on the east side of the area and adjacent to the Puskwaskau Highlands. Residual morainal deposits occur near the town of Valleyview and west of Little Puskwaskau Lake. Wetlands predominate near the Little Smoky River and east of Sturgeon Lake. Water frequently is found at the surface. Organics are common around DeBolt and east of the Simonette River.

The dominant vegetation cover is aspen on well-drained to inperfectly drained soils. Various conifers, shrubs and grasses occur in association with gleyed and organic soils in wetland areas. The climate is continental with a large seasonal variation. Most precipitation falls in the summer.

The town of Valleyview is located at the junction of Primary Highways 34 and 43 and is the major service centre, but there are five other settlements on Highway 34: Calais, Sturgeon Heights, Crooked Creek and DeBolt to the west of Valleyview, and New Fish Creek to the north. Secondary and local roads service surrounding agricultural lands.

Agriculture started to develop in this area over 50 years ago and today most of lands in the RMA are deeded. In the past, the majority of agricultural development has taken place on lacustrine soils. In recent years, however, it has extended onto moraines, particularly in that portion of the RMA lying south of Valleyview.

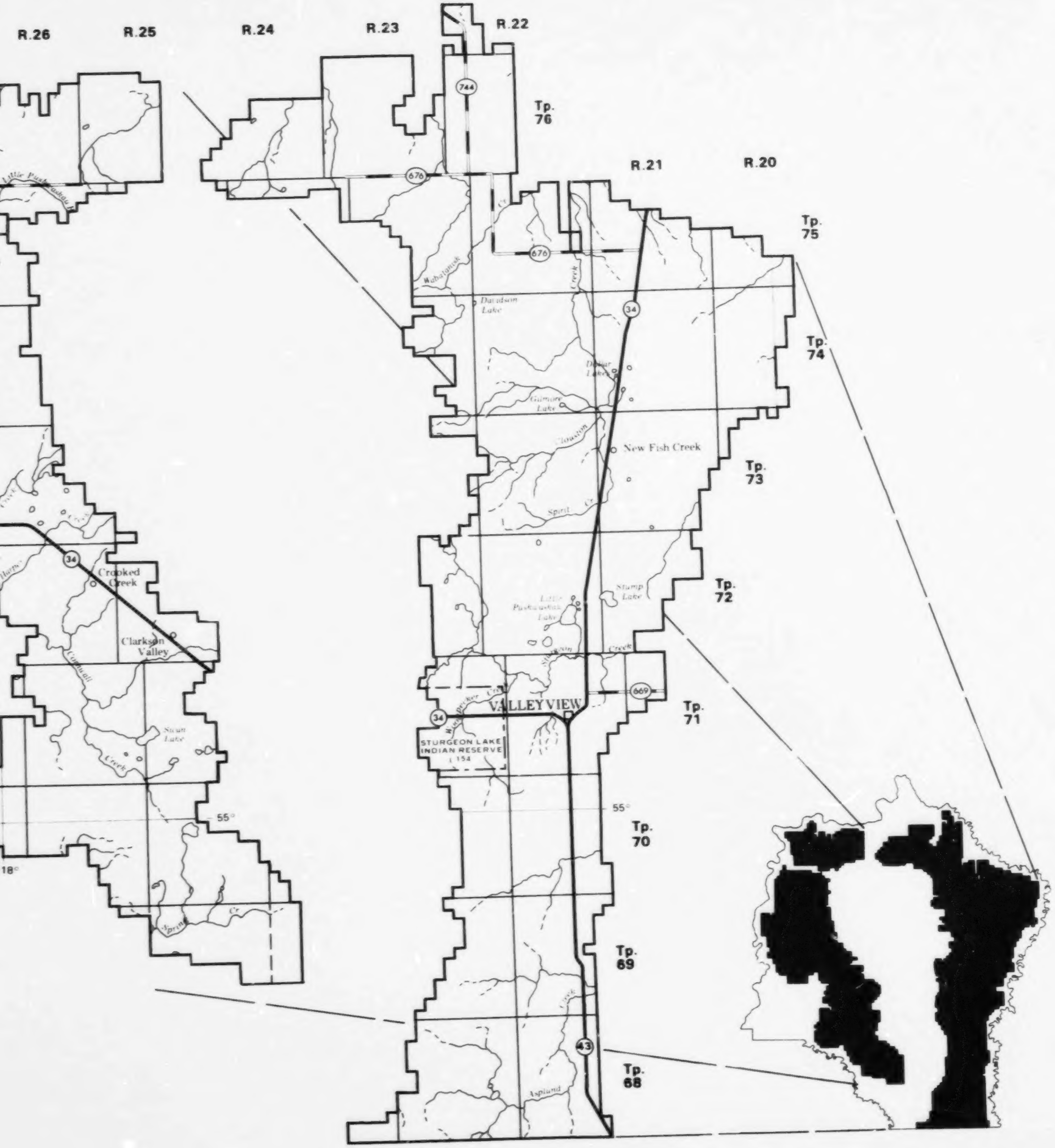


Management Intent

Sustained agricultural utilization with priority given to the disposition of lands suitable for till cropping or grazing to meet the needs of the local farming community. All lands excepting the outlying Multiple Use and Conservation areas of emphasis will be made available for settlement subject to normal disposition procedures.

The remaining Conservation areas will be managed on a multiple use basis with emphasis on the protection of environmentally sensitive resources. The remaining Multiple Use areas will be managed with selected emphases on sustained-yield timber harvesting and grazing.

All resource allocations within the Bridle Bit catchment area will take effect once Environment's research program is completed. Until then, no resource uses which have potential impact on the watershed will be permitted.


R.26
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744
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676
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669
43
Little Pashwaskau
Wabatanisk
Cr.
Creek
Davidson Lake
Dollar Lake
Gilmore Lake
Clouston
New Fish Creek
Spirit Cr.
Little Pashwaskau Lake
Stump Lake
Sturgeon Creek
Crooked Creek
Clarkson Valley
Cornwall
Swan Lake
Creek
VALLEYVIEW
STURGEON LAKE INDIAN RESERVE 154
55°
55°
118°
Spring Cr.
Creek
Aspland

Agriculture

This RMA contains most of the existing patent lands and most of the Crown lands that have been identified in the plan as suitable for agricultural sale. These lands are concentrated in the Spring Creek area, the Whitemud area, and the fringe area on the East and West sides of the Puskwaskau Highlands. A large proportion of these lands are currently held under long-term disposition for grazing purposes, consequently only a portion of the lands identified as suitable for cultivation can be made available for sale in the near future.

With the exception of some Conservation areas of interest and those lands designated Multiple Use which have been identified for management as community farm woodlots, lands in the RMA not suitable for till cropping will be made available for grazing where capable. A portion of the Valleyview Grazing Reserve, in Twps 68-69, Rges 23-24, W5M, is included in this RMA.

The lands within this RMA are generally suitable for producing annual and forage crops. This RMA contains all remaining lands of till-cropping capability that will be made available to meet the expansion requirements of the agricultural community.

Management Objectives

1. To develop cultivation on lands with relatively high capability for crop production.
2. To increase the level of improved and unimproved domestic grazing where potential and demand exist.
3. To minimize the impact of agricultural expansion on areas identified as environmentally sensitive.
4. To ensure suitable opportunities for large scale improved grazing.

Management Guidelines

1. Crown lands will be made available for agricultural expansion in the following manner:

   -- all lands in the RMA will be placed in the White Area;
   -- the soil resource throughout the RMA will be evaluated by detailed soil surveys to determine agricultural potential;

- -- arrangements will be made for the installation of necessary services to ensure the orderly development of new agricultural areas; and
- -- ecological corridor agreements will be used to protect sensitive areas on lands intended for sale.

2. Applications to purchase leased lands will be encouraged in the Agriculture area of emphasis consistent with direction as outlined in the Grazing Lease Conversion Policy.

   Applications to purchase leased lands may also be considered in the Conservation and Multiple Use areas of emphasis (excepting woodlot lands) providing:

   - -- detailed site inspections show minimal Conservation or Multiple Use values;
   - -- the agency(ies) responsible for the resources that the area of emphasis is intended to priorize are in agreement;
   - -- attempts should be made to ensure that known users affected by the decision are notified in advance;
   - -- consideration will be given to providing lands with Conservation or Multiple Use values in compensation for the lands sold. Lands provided in compensation will generally be lands in the Agriculture area of emphasis that detailed site inventories have shown to be unsuitable for agricultural development; and
   - -- the changes are noted by the Peace River RRMC as housekeeping revisions in the annual implementation report.

   Lease conversion applications will not be considered outside the boundaries of the RMA.

3. The carrying capacity of grazing dispositions will be increased where capacity exists upon the acceptance of an approved range management plan. Management plans must stipulate measures that provide for grass carry-over and wildlife passage.

4. Lands within the Conservation area of emphasis and productive forested areas within the Multiple Use area of emphasis will be maintained under Crown ownership under appropriate land-use reservations, except as noted in Gl 2, above.

5. Multiple Use lands in the Spring Creek basin will be oriented toward providing opportunities for both improved and unimproved grazing wherever the following prerequisites are met:

   - -- capability exists;
   - -- there is no conflict with community timber requirements; and
   - -- there is no serious conflict with the wildlife resource.

6. Restricted stocking rates will be applied to all grazing lease lands in the Conservation area of emphasis in the Sturgeon Creek drainage. Only unimproved grazing will be permitted on all quarter sections traversed by Sturgeon Creek and its tributaries. All drainages of Sturgeon Creek will be buffered by 100 m and fenced to prevent cattle access. Improved grazing will be permitted outside of these areas upon acceptance of approved development plans.

7. Quarter sections with less than approximately 60 acres (24 ha) developable for agricultural purposes should be retained in Crown ownership and for issuance of grazing leases where appropriate. Metes and bounds deletions will be used to sell developable portions of the quarter. If metes and bounds deletions are not practical, Farm Development Leases without option to purchase could be issued on developable parts of the quarter.

   Generally, undevelopable parts of a quarter are considered to be sandy soils, muskeg soils (not peaty soils) and areas of severe topographic restraints to development.

8. Grazing developments will not be permitted in portions of the Swan and Pelican Lakes Conservation areas of emphasis (18-70-25-W5M; SE 13-70-26-W5M/and 1-70-25-W5M; 6, S 1/2 7, S 1/2 8, NE 8, N 1/2 9-70-24-W5M, respectively).

9. Agricultural dispositions will not be provided within the Bridle Bit catchment area until the research program is completed (see Watershed, Gl 2, p. 106).

10. Public Lands, Culture and F & W will participate in a referral program. Public Lands will notify both agencies of all significant blocks of land for which detailed soil surveys will take place. Culture will identify any significant historical resources requiring historical resource impact assessments before development occurs. F & W will identify all local wildlife and fisheries concerns. Adequate buffers and setbacks will be required for all activities which have potential impact on important creeks, water bodies or habitat. Developments having significant and unavoidable impacts will not be permitted.

11. Any improved grazing development of the potential future Grazing Reserve in Spring Creek (see 1:100 000 map, Figure 9) should be to a high level of utilization sufficient to support in the order of 8 000 AUMs. Environment will be referred on the development proposal to ensure that land clearing is conducted so as to maximize useful hydrological information for the purposes of the watershed research program.

Rationale

Gl 1. Caveats to land titles in the form of ecological corridor agreements on lands posted for sale will ensure the retention in a natural state of all waterbodies and watercourses of significance for wildlife, conservation, erosion control and water quality maintenance purposes.

Gl 5 & 9 Fencing to prevent cattle access to significant creeks will prevent stream bank erosion and accumulation of nutrient rich cattle wastes in the water.

Agricultural expansion will be phased wherever possible in such a manner that lands to be disposed of first will be those having the least impact on other resources.

Gl 6. Lands with 60 per cent of their area of non-till cropping capability will remain in Crown ownership, with cultivation leases posted on only the capable blocks. Maintenance of public land dispersed throughout the agricultural community will provide local opportunities for grazing, localized wildlife habitat, and large water retention areas.

Fisheries

Most of the streams in this RMA are surrounded by patent lands. Fisheries habitats have declined in most to the point that they have neither sportfish value (except in the lower reaches and mouth areas) nor hope of rehabilitation.

Sturgeon and Asplund creeks support small pike populations. Grayling and walleye frequent the lower stretches.

New trout sportfisheries have been developed at Swan Lake, East Dollar Lake and the Valleyview townsite pond. Access and day use facilities have been developed at East Dollar Lake.

Spring Creek supports a small arctic grayling population.

Management Objectives

1. To ensure effective functioning of the Sturgeon Creek fishway.
2. To enhance the grayling fishery of Spring Creek upon completion of the Spring Creek Basin Study.

Management Guidelines

1. Resource development will take place in a manner compatible with fisheries values (see Agriculture, pp. 95-97).
2. Access and day use facilities will be developed at Swan Lake under the Access Development Program.

Heritage

Lakeshore and riverine environments have been demonstrated to be focal points for prehistoric and historic activities in northern Alberta.

Management Objectives

See the generally applicable heritage management objective on page 13.

Management Guideline

Culture will participate in the land use referral process to review any proposed resource developments affecting lands of high historical resource potential in the following locations (see also Figure 3, p. 12):

-- Sturgeon Creek (NE29, SE32, 33-71-23-W5M);
-- Stump Lake (18, S 1/2 19-71-21-W5M, E 1/2 13, SE24-71-22-W5M);
-- Little Puskwaskau Lake (E 1/2, 10, 11, 14, E 1/2 15-71-22-W5M);
-- Pelican Lake (1-70-25-W5M, W 1/2 6-70-24-W5M, N 1/2 36-69-25-W5M, NW31-69-24-W5M);
-- Swan Lake (N 1/2 7, 18, S 1/2 19-70-25-W5M, N 1/2 12, 13-70-26-W5M); and
-- Unnamed Lake (E 1/2 20, 21, S 1/2 28, SE29-69-25-W5M).

Minerals

Large portions of the Ante Creek North, Cornwall, Little Smoky and Sturgeon Lake South petroleum and natural gas fields as well as a small part of the Sturgeon Lake field occur within the RMA. Four gas wells (plus seven capped gas wells) and 61 oil wells are located here, as well as one gas processing plant. Reserves of petroleum and natural gas are estimated at 3 million m3 and one billion m^3 and production in 1984 respectively is estimated at 300 X 103 m^3 and 40 X 106 m^3.

Management Objective

To encourage continued exploration and development of all petroleum and natural gas resources in the five fields and other areas of the RMA.

Management Guideline

Minerals exploration or development activities will not be permitted within the Bridle Bit catchment area until the research program is completed (see Watershed, Gl 2, p.106).

Recreation and Tourism

Highways 34 and 43 are the major traffic arteries traversing this RMA. Highway 34 provides access to the MacKenzie and Alaska highways. There may be potential for developing self-guiding ecological/cultural driving brochures for Highways 34 and 43; potential developments associated with this could be scenic vehicle pull-off and day-use/picnic areas.

Valleyview, Crooked Creek, and DeBolt currently serve as service centres for both the local population and the travelling public. There may be opportunities to expand their roles as service centres.

Management Objective

To provide opportunities for the private sector to participate in developments which cater to the needs of users of the area and the travelling public.

Management Guideline

Highways 34 and 43 and the Forestry Trunk Road provide touring opportunities and the potential for associated facility developments is recognized.

Timber

Commercial and regenerated coniferous stands are widely scattered throughout the RMA. Forest cover on the better-drained areas is predominantly aspen with small areas of mature and regenerating white spruce. There are a number of poorly drained organic soil areas with a black spruce forest cover which for the main part cannot be classed as productive forest land.

Harvesting is at present being carried out by local people in accordance with the Valleyview Woodlot Plan dated 1972 and updated by the AFS in 1979. There are a number of isolated stands of white spruce associated with wet areas. This land is not suitable for sale and will remain available for timber production.

The annual allowable cut for coniferous timber will be determined upon plan approval. The demand for deciduous timber is low at this time, but can be expected to increase in the future as the trend towards utilizing aspen increases.

Management Objective

To provide a supply of primary forest products for use by local residents while recognizing areas of important wildlife habitat and environmental value.

Management Guidelines

1. Three different blocks of land containing significant amounts of timber have been identified as Community Farm Woodlots (Figure 9). These lands will remain in Crown ownership in the White Area and are to be reserved under indefinite timber reservations. They will be managed under sustained yield to meet a portion of the local community timber requirements.

2. Lands of till-cropping capability supporting adequate volumes of commercial timber for use by local residents (i.e., minimum 860 m^3/quarter section: coniferous) will be identified. These areas will be held under five-year reservations or until timber supply is exhausted, at which time they will be made available to agriculture disposition.

3. Harvesting of merchantable coniferous timber will be completed on saleable agricultural lands prior to the disposition of the land.

4. Areas not suitable for till cropping which contain significant volumes of commercial timber (minimum 860 m^3/quarter section: coniferous) and/or 50+ acres of regenerated coniferous timber will be identified and will remain in Crown ownership to provide local residents with a continued supply of forest products.

5. Timber sales will be limited to short-term dispositions.

6. Timber harvesting or other forest management activities with potential watershed impacts will not be permitted within the Bridle Bit catchment area until the research program is completed (see Watershed, Gl 2, p.106).

7. In the Conservation area of emphasis in the Sturgeon Creek drainage, all proposals for timber-harvesting operations or combinations of operations with clearcut areas of 10 acres (4 ha) or larger will be referred to F & W. There will be no disturbance of any kind and no removal of forest cover within 200 ft. (60 m) of the high water mark of Sturgeon Creek.

Rationale

Gl 1. See rationale for Gl 3, p.73.

Watershed

For the most part, streams in the RMA are intermittent in nature. Rural water supplies are obtained chiefly from dugouts. Removal of surface water from low spots in fields is a common problem. The most common method employed to speed up the process is by ditching. Drainage of sloughs is also carried out to increase cultivated acreage.

The developed drainage system has increased peak run-off flows, resulting in some flooding and erosion problems. Sheet, rill and gully erosion, with its attendant impacts on the water quality of receiving streams, is a growing concern as additional (and also more erosionally-susceptible lands) are put under cultivation.

Wet areas allocated to the Conservation area of emphasis within this RMA are of beneficial service in the general hydrologic cycle in the area as well as providing some forest products and limited habitat for wildlife. These areas will be retained by the Crown unless special detailed studies for specific cases indicate that their benefits are not sufficient.

Management Objectives

1. To regulate land-use practices and resource developments having potential impacts on wetlands and riparian lands susceptible to disturbance or erosion.
2. To complete work on the Spring Creek Research Basin.
3. To ensure that water quality and sediment loads in various watercourses are maintained at acceptable levels.

Management Guidelines

1. Various measures will be adopted to ensure the prevention of avoidable impacts on important watersheds as follows:
   - -- Lands important in the mitigation of the effects of erosion and increased runoff peaks, or which otherwise serve useful functions in the hydrological cycle, will be retained by the Crown;
   - -- Public Lands will notify Environment of all lands for which detailed soil inventories and assessments will take place. Environment will provide input into the assessment process as required in order to avoid future potential drainage or water management problems; and

-- development proposals will be assessed for potential impacts. This will involve inspection and analysis of site characteristics such as terrain sensitivity. Adequate buffers and setbacks will be required for all activities which potentially affect important watersheds. Development having significant and unavoidable impacts will not be permitted (see Agriculture, Gl 10, p.97).

2. Resource uses potentially impacting upon the watershed of the Bridle Bit catchment area will not be permitted until the area is no longer required for the purposes of a research control, at which time direction provided by the resource allocation scheme will come into effect (see pp. 37-38; Figure 9; Agriculture Gl 9, p. 97; Minerals p. 101; and Timber Gl 6, p. 104).

Wildlife

Not all lands within this planning are arable. Some of these lands, designated to the Conservation area of emphasis, envelop watercourses, waterbodies or large wetland areas. Non-arable lands are important in maintaining dispersed habitats which provide opportunities for recreation, wildlife and water management. Upland and migratory birds, deer, moose and furbearers use these areas and are important in sustaining localized recreation and hunting.

Little Puskwaskau and Stump lakes are important waterfowl areas.

Crown lands in the Spring Creek area provide excellent ungulate habitat. This is the only area in this RMA where concentrations of elk occur.

Management Objective

To develop and maintain wildlife habitat dispersed throughout the RMA to provide recreation, hunting and trapping opportunities.

Management Guideline

See generally applicable wildlife management guidelines, pp. 21-22.

4. VARIOUS IMPLICATIONS

Introduction

Recording the anticipated consequences of the provisions of the plan on the present status of resources within the planning area helps in interpreting what the plan is likely to mean. It also provides useful information for the approvals and the monitoring and review stages of the planning process (the extent to which the expectation conforms to the reality).

The number of potential implications arising from a plan of this scope are vast. Not all are foreseeable and many are of limited consequence. Accordingly, only those implications considered to be significant have been identified by the representatives of the participating agencies. All implications are based on the assumption that the plan is adopted as written.

This chapter addresses only those implications that have not been dealt with elsewhere. For the most part, this involves either implications specific to a particular resource sector in a particular area, or general implications falling out of provisions of the plan common to one, or a number of RMAs, or even the entire planning area. Other implications have been addressed elsewhere as follows:

-- key implications arising from the resource allocation scheme are detailed in Chapter 2 (pages 24-33) and have not been reformatted on an RMA basis;

-- implications arising from a number of specific policy recommendations are identified in Chapter 5; and

-- implications to agencies concerning manpower, funding, time and other resource commitments will be dealt with in the companion implementation document.

The implications below are ordered alphabetically by resource sector. In each case, implications particular to the identified resource are discussed, followed by implications stemming from the effects of provisions relating to that resource on each of the other resource categories. To minimize repetition, implications to a particular resource sector resulting from the combined effects of provisions for other resource sectors are dealt with in a separate section at the end of this chapter, entitled 'RMA-based implications'.

AGRICULTURE

Minerals

1. Transfer of land to numerous private holders may cause expense, delays and complications to the petroleum and natural gas industry.

2. Extension of the municipal road network facilitates access for the petroleum and natural gas industry.

Recreation

Agricultural expansion will entail no significant loss of Crown land suitable for recreational development. Sufficient Crown lands will remain to provide for recreation both now and in the foreseeable future. This does not apply to the loss of hunting opportunities which will be associated with the loss of wildlife habitat.

Timber

1. Removal of land from the Green Area for agricultural expansion will result in the loss of productive forest land. Most of the land going to agriculture is rated as having a high capability for producing wood fibre.

2. Much of the expanding agricultural community is near or adjacent to forested lands. History indicates that forest-fire protection for these types of communities is expensive and often ineffective. Land clearing and additional access will result in increased fire-protection activities.

3. There will be some decrease in the amount of coniferous timber available to local residents in the future. This cutback should not take place for approximately five years as timber will be liquidated on lands being made available for agriculture during that time period.

   Local residents now harvest an average of 13 900 m^3 a year (3 240 000 fbm) within the planning area. The future harvest size cannot be determined until lands being proposed as community farm woodlots (see p. 118) are re-inventoried.

   Practically all of the land being made available for agricultural expansion is forested with most being stocked to deciduous species. To date there has been little demand for deciduous timber; however, there is a movement to utilize these species. Accordingly there is some opportunity cost in lost potential future jobs in the forest industry associated with an expanding agricultural industry (studies conducted by Canadian Forest Industries Ltd. indicate that 1000 acres (405 ha) of forest land stocked to coniferous species will support one permanent job in the forest industry).

When larger markets do develop for deciduous timber, it is probable that farmers will be able to market some of this wood. This would help to defray the high cost of land clearing.

Wildlife

1. A significant reduction in the Crown land base on several traplines will necessitate realignment of trapline boundaries.

2. The reduction in numbers of ungulates (Chapter 2) reflects the area of land to be ultimately posted for sale. Further ungulate reductions are anticipated as a result of grazing development. Proposed and existing grazing dispositions together with an expansion of patent lands abutting Crown lands will result in access problems.

   Some reduction in ungulate numbers and wildlife habitat will occur both as a result of proposed cultivation leases in the River Corridors RMA and any grazing that may take place in the Conservation areas of emphasis outliers in the Valleyview-Debolt RMA.

   Any new grazing developments in the Puskwaskau and Economy RMAs will lead to a significant reduction in ungulate numbers.

FISHERIES

A significant increase in local angling opportunity will result from the development of trout fisheries in Swan, Mountain and Dollar lakes.

MINERALS

The clarification of land-use intentions should remove doubts about resource-use allocations and therefore allow better industry planning.

TIMBER

Wildlife

Timber harvesting is a permitted activity in all RMAs. The effects of this harvest will be variable, depending on the species of tree harvested, reforestation practices, cutting patterns and so on. The plan proposes to minimize the effects by modifications in harvesting and reforestation practices in designated areas designed to maintain or enhance wildlife habitat. Timber harvesting will be beneficial to certain species, particularly moose, hares, ruffed grouse and deer which are species which utilize the early successional stages of forest regeneration. Species which prefer mature forest (e.g., marten) will be adversely affected. The overall impact on wildlife is impossible to assess and likely will vary from RMA to RMA, depending on the amount and distribution of timber harvest in each area.

WILDLIFE

Timber

Any modifications, restrictions or prohibitions of timber harvesting necessary to safeguard important or critical wildlife habitat may entail a loss of AAC or increased costs to the operator.

RMA-BASED IMPLICATIONS

RIVER CORRIDORS

Agriculture

A considerable amount of land (93.5 sections throughout the RMA) is currently held under grazing disposition. The majority of these lands are situated below the valley breaks of the three major river systems and are subject to the restrictive provisions of the RMA necessary to minimize soil erosion, to protect wildlife and to preserve its habitat. In situations where the acreage of a grazing disposition is reduced, the current carrying capacity will be maintained through range improvement on the remaining acreage or the provision of additional acreage in a less-sensitive area.

In accordance with the provisions of the RMA, lands situated on upland areas adjacent to the valley breaks with a high capability for till cropping will be made available for that purpose through farm development leases with no option to purchase.

Minerals

Some prohibitions on minerals exploration and development activities will likely apply on a site-specific basis. In most cases this is unlikely to render affected mineral resources unrecoverable.

Additional operating conditions and increased levels of enforcement of environmental restrictions may make both exploration and development of petroleum and natural gas more costly at certain environmentally sensitive sites.

Wildlife

Specific wildlife management planning and regulation may be required in the north Puskwaskau migration corridor in order to maintain and protect the integrity of this habitat.

5. POLICY RECOMMENDATIONS

A few policy-level issues require addressing as a prerequisite to actualizing the intent the plan. These issues have been identified by participants in the planning process as significantly affecting the interactions and relationships between various resource sectors and uses. They require resolution in order for the plan to be truly integrated and to provide the appropriate level of direction and guidance for the use and management of Crown lands and resources within the sub-region.

There is a distinction in kind between policy-level issues which are relatively straightforward in intent and execution, and those which raise considerations that require assessment in a provincial context and which perhaps can not, or should not, be addressed solely in a sub-regional context. The first item below falls into the first category. The direction provided is relatively prescriptive and, if the plan is adopted, will be implemented. The other two items are couched in the form of recommendations for further action. Additional followups would be required after adoption of the plan before these recommendations could be put into effect.

GREEN/WHITE AREA BOUNDARY

Note: On May 7, 1985 the Yellow Area ceased to exist (MO 71/85). Since homestead sale dispositions were no longer issued after July 1, 1984, there was no need to retain a Yellow Area distinction because public lands in the Peace are managed in the same manner as White Area lands elsewhere. Accordingly the former Yellow Area is now designated as White Area.

Recommendations

1. The existing Green/White Area boundary (Figure 6), will be realigned to include all agricultural expansion areas in the White Area (Figure 7).
2. The "outside" Green Area designation will cease to exist in this area. All G02 and G04 FMUs will become either White Area or permanent Green Area.

Rationale/Discussion

Realignment of the Green/White Area boundary is necessary to place lands identified primarily for an agricultural and settlement emphasis and lands identified for a multiple-use emphasis in the correct administrative areas. The "outside" Green Area designation has been found to be somewhat cumbersome as it formally splits the mandate between Public Lands and the AFS. Where necessary, administrative splits are easily arranged. Accordingly, the designation is being removed.

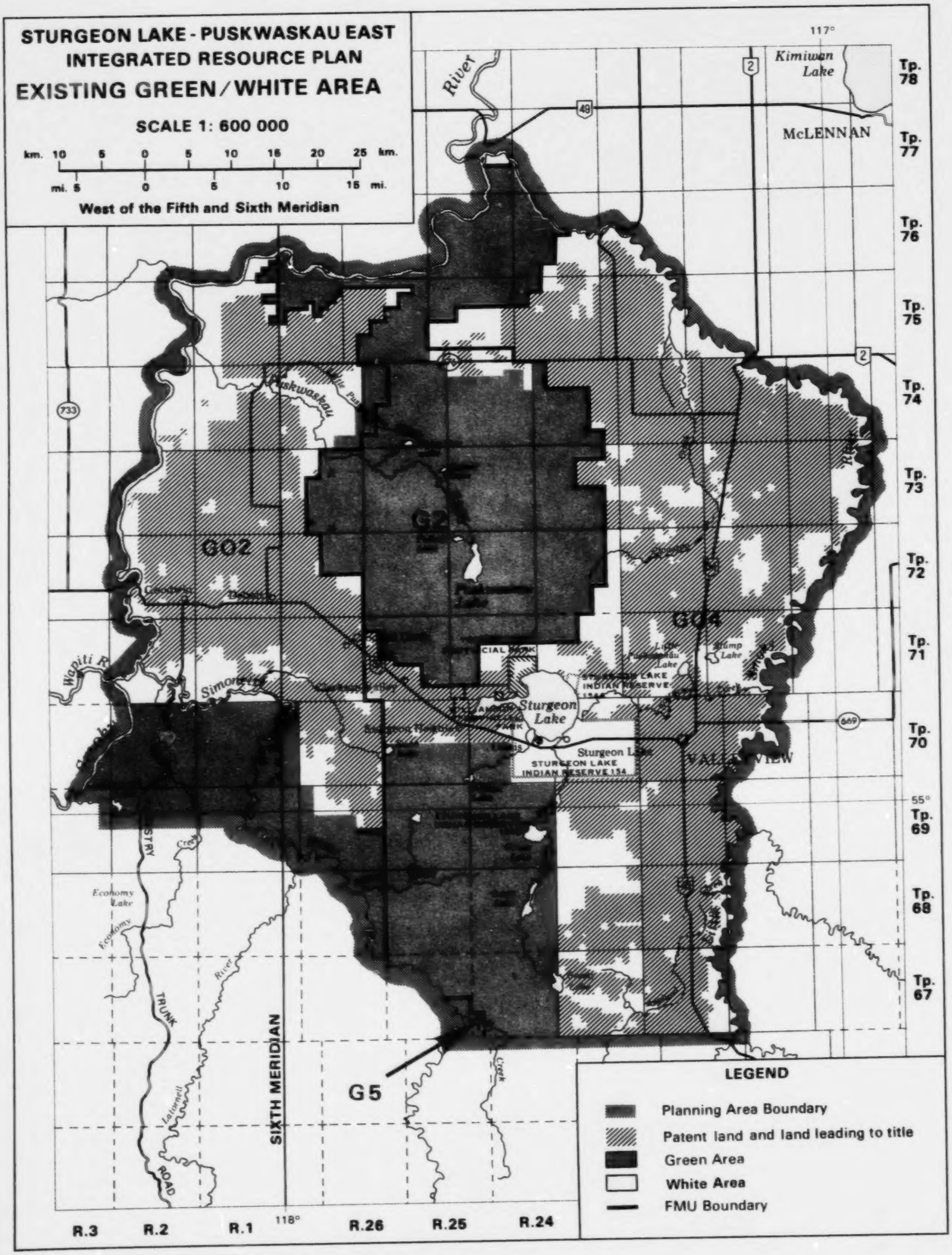
STURGEON LAKE - PUSKWASKAU EAST
INTEGRATED RESOURCE PLAN
EXISTING GREEN/WHITE AREA
SCALE 1: 600 000
km. 10 5 0 5 10 15 20 25 km.
mi. 5 0 5 10 15 mi.
West of the Fifth and Sixth Meridian
117°
Kimiwan Lake
McLENNAN
River
49
2
733
Puskwaskau
GO2
G2
GO4
Goodwin
Debolt
Wapiti R
Simonette
Sturgeon Lake
CIAL PARK
STURGEON LAKE INDIAN RESERVE 154A
STURGEON LAKE INDIAN RESERVE 154
Little Puskwaskau Lake
Stump Lake
Sturgeon Heights
Sturgeon Lake
VALLEYVIEW
669
55°
Economy Lake
Economy
FORESTRY TRUNK ROAD
Creek
River
Latornell
SIXTH MERIDIAN
G5
Creek
Tp. 78
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
R.3
R.2
R.1
118°
R.26
R.25
R.24
LEGEND
Planning Area Boundary
Patent land and land leading to title
Green Area
White Area
FMU Boundary

Figure 6 EXISTING GREEN/ WHITE AREA

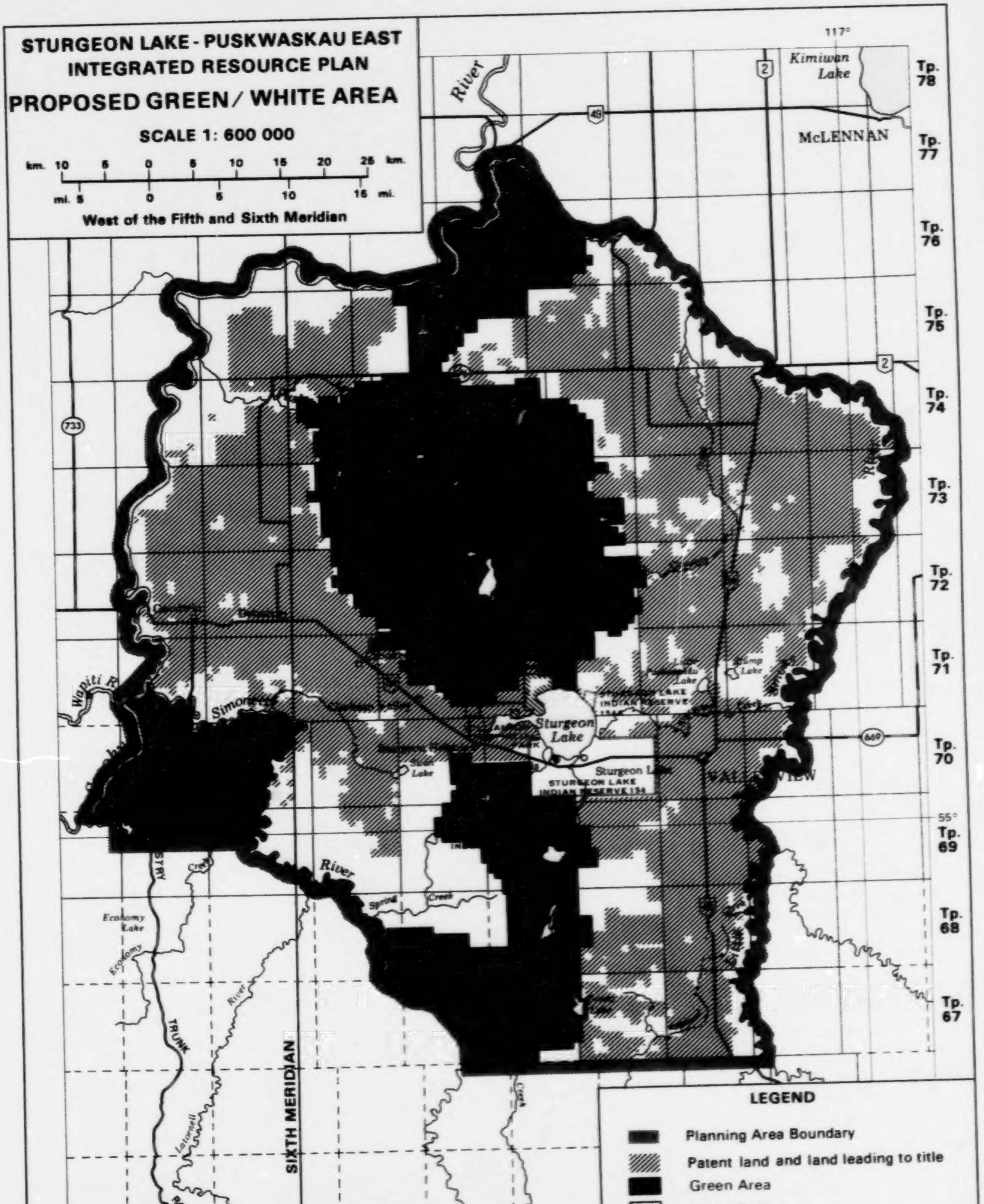
STURGEON LAKE - PUSKWASKAU EAST
INTEGRATED RESOURCE PLAN
PROPOSED GREEN / WHITE AREA
SCALE 1: 600 000
km. 10 5 0 5 10 15 20 25 km.
mi. 5 0 5 10 15 mi.
West of the Fifth and Sixth Meridian
117°
Kimiwan Lake
McLENNAN
River
Tp. 78
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
55°
2
49
733
669
Wapiti R
Simonette
Sturgeon Lake
STURGEON LAKE INDIAN RESERVE 154
Sturgeon L
VALLEYVIEW
Economy Lake
Economy
Creek
Spring Creek
River
TRUNK ROAD
SIXTH MERIDIAN
Latornell
Creek
R.3
R.2
R.1
118°
R.26
R.25
R.24
LEGEND
Planning Area Boundary
Patent land and land leading to title
Green Area
White Area
Proposed FMU Boundary

Figure 7 PROPOSED GREEN/WHITE AREA

The quantity and quality of background resource capability data utilized in the planning process and the degree of resource allocation direction provided in the plan are more than adequate to firmly delineate the most appropriate Green/White Area boundary, and no additional detailed site inventory work is required in order to finalize the proposed boundary.

A ministerial order or order-in-council will be required to effect the boundary revisions.

Appendix 1 (p. 145) provides a complete legal listing of lands on which area changes from Green to White or White to Green will be requested.

Green Area lands in the Economy/Ante Creek and Sturgeon Lake Watershed RMAs will be assigned to FMUs by the AFS upon adoption of this plan.

If changes are made to the watershed protection intent in the Sturgeon Lake watershed following the first major plan review (see p.36), future revisions to the proposed configuration of the Green/White Area boundary south of Highway 34 may be required at that time.

Community Farm Woodlots

Scattered throughout the White Area are a number of relatively small parcels of land in the Multiple Use and Conservation areas of emphasis[10] which are suitable for use as farm woodlots (Figure 9). These lands contain significant timber resources with a mix of commercial coniferous timber, regeneration, and young coniferous which provide a balanced age-class distribution suitable for sustained woodlot management.

Traditionally, these types of woodlots have been held under short term timber reservations which do not provide the security of tenure necessary for effective management. This has generally led to a steady erosion and liquidation of woodlot lands. Accordingly, lands identified as woodlots which do not lie in the main body of the Green Area have been identified on Figure 9. These lands will be placed under indefinate timber reservations to provide security of tenure and to allow the release of funding for reforestation of cutover lands and other expensive silvicultural practices (see Appendix 2, p. 151; also Gl 3, p. 72 and Gl 1, p. 103).

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[10] It is important to note that in Conservation areas of emphasis, the designation of lands as community farm woodlot does not imply a timber priority. Rather, woodlot management will be conducted in a manner consistent with the intent of the area of emphasis.

Implications

There will be a reduction in the size of the permanent forest land base in the Sturgeon Lake-Puskwaskau East planning area with a corresponding increase in the amount of land available for the local agricultural community. Tables 2 and 3 summarize land totals and transfers between administrative designations.[11]

Table 2
Green/White Area Land Transfers
(in sections)

Green to White	White to Green
204	58

Table 3
Green/White Area Totals
(in sections)

	Green Area	Yellow/White Area
Pre-Plan[12]	889	1 362
Post Plan	743	1 508

There will be a loss of approximately 8.5 sections to the Canadian Forest Products FMA. The FMA with the company states, "When the net aggregate area of lands withdrawn from the FMA exceeds two per cent thereof, the Minister shall replace such excess by adding, as soon as practicable, an area from the nearest available public timber lands equivalent to such excess area" (Section 6[3] of O.C. 1292/77). Accordingly, lands withdrawn from the Canfor FMA for agricultural purposes will probably require replacement.

There will also be approximately 50 square miles withdrawn from the Procter and Gamble Provisional Reserve for agricultural purposes.

All other withdrawals from the Green Area are coming from lands on which the government does not have a signed agreement of commitment with any company or individual in regard to timber harvesting.

The revised delineation of the Green/White Area boundary, apart from establishing the limit of agricultural expansion and clarifying agency administrative responsibilities, also provides the AFS with the the direction necessary to manage the timber resource along the boundary with confidence, free of the management concerns and problems created by constant erosion of the productive forest land base to agricultural expansion.

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[11] The difference between the numbers in the above tables (146 sections), does not correspond with the amount of land cited as available for agricultural expansion (see Agriculture, p.25). This is because some minor Green/White Area boundary revisions took place while the plan was under development.

[12] Pre-plan totals include lands in the "GO" area designation.

GRAZING ON LANDS CAPABLE OF TILL CROPPING IN THE AGRICULTURE AREA OF EMPHASIS

Recommendations

1. The present FLW practice of renewing grazing leases that contain lands having till cropping capability should be thoroughly reviewed.

2. Any review of present policy should accommodate public input and encourage submissions from affected groups.

Rationale/Discussion

Within the planning area as a whole, there are a lot of lands suitable for grazing purposes, and grazing is a permitted use throughout the entire sub-region (although only unimproved grazing is permitted in the Sturgeon Lake Watershed RMA and throughout much of the River Corridors RMA). Lands suitable for till cropping, however, are very limited. Most of the best lands for this purpose are already patent and the plan identifies opportunities for additional till cropping only in the Agriculture area of emphasis.

It is therefore arguable, that over time till cropping should become the preferred use on all lands capable for that purpose in the Agriculture area and portions of the other three areas of emphasis as appropriate.

In practice, this transition is difficult to achieve and lessees rarely, if ever, are denied a lease renewal because other uses for the land have been identified. There are good reasons (primarily, that of dealing fairly with individuals) for doing this, and they should not be disregarded or weighed lightly. The inevitable consequence of this, however, is that a logical progression toward a more intensive land use is precluded, resulting in a lack of opportunities both for farmers wishing to expand their till cropping operations and for would-be farmers (frequently sons and daughters in the established farming community).

Integrated resource management and planning constitute a response to increasing pressures on finite resources. In the past, the fact that lands of till cropping capability were held under grazing disposition really did not constitute a problem, because other lands were usually available -- either in the form of undisposed White Area lands, or new lands in the Green Area which could be transferred to the White Area and made available.

Today circumstances are radically different. Before this plan was initiated the stock of suitable lands in the Yellow Area was almost entirely exhausted. Most of the lands released by this plan from the Green Area are quite marginal for till cropping purposes. Lands remaining in the Green Area are, for the most part, more marginal still, and the point has been reached at which their future release may well have unacceptable impacts on a broad range of resources.

It follows logically from the preclusion of the option of constant expansion that options for optimizing the efficient utilization of resources become more limited and must be increasingly focused on an appropriate mix of resource uses on a given land base.

About 37 of the 139 sections of land that have been placed in the Agriculture area of emphasis (about 27 per cent of the total) are at present under various grazing dispositions. In virtually all cases it would be possible to maintain or increase the level of existing range use through range improvement on a portion of the leased land while relinquishing the remainder for till cropping purposes (range improvement commonly leads to a five-to-sevenfold increase in AUMs on a per unit area basis).

Implications

1. Encouraging extensive public input should ensure all viewpoints are adequately aired and provide policy-makers with the information necessary to reach a widely acceptable resolution.
2. There will be clarification of a policy practice which is widely perceived to be problematic.
3. Because there is generally a higher wildlife productivity where the level of agricultural activity is low, any move to encourage a greater intensity of agricultural land use will adversely affect wildlife populations.
4. Any action on recommendations 1 and 2 above, might have an effect on the phasing priorities discussed in Chapter 6 (p. 124).

SHELTER BELTS ON AGRICULTURAL LANDS

Recommendations

1. The topic should be reviewed in a regional context by representatives of all affected jurisdictions.
2. The scope of the issue and all associated implications should be detailed.
3. The practicality and desirability of remedial or preventative measures should be assessed.
4. A public involvement program to provide opportunities for input from the general public should be an integral part of the exercise.

Rationale/Discussion

The undesirability of total clearing on agricultural lands has been identified as an issue of concern at every public meeting held in connection with this IRP, receiving particular attention when the draft plan was publicly reviewed in July, 1986.

The completely open character of agricultural lands in some parts of the planning area was widely felt to be undesirable. Preventing soil erosion and wind, preserving wildlife habitat and creating visual amenity were the most commonly cited reasons for maintaining buffers and a mosaic of undeveloped lands in areas with a predominantly agricultural development focus. Currently Forestry, Lands and Wildlife does issue a notice with each new farm development sale or lease agreement encouraging landholders to retain both shelter belts and lands of conservation value. At the public meetings there was a distinct preference for regulatory means to ensure this issue is addressed effectively.

There is unlikely to be much cause for concern in agricultural expansion areas in this IRP since they are limited in extent and are often more marginally capable than adjacent developed lands. These natural physical limitations, along with the selective use of ecological corridor agreements, and the withholding of lands which detailed soil inventories or referrals determine to be unsuitable for sale mean that the total clearing problem is unlikely to occur. Also the IRP identifies much land as unsuitable for sale - generous buffers are left on all remaining major streams and rivers in the planning area and various fragmented parcels of land have been zoned Conservation throughout the Agriculture area of emphasis.

Wide open spaces are becoming a dominant characteristic of agricultural development in parts of the Peace Country, however, and if there is indeed a common perception amongst residents of the region that this is problematic, then it merits attention. Options for addressing the subject include expanding the use of ecological corridor agreements, placing other caveats when title is issued, retaining lands in Crown ownership, education programs, or adopting policies at the local planning authority level. The pros and cons associated with all these approaches deserve to be assessed in detail both by those who might be responsible for their implementation and those who may be affected by them.

Implications

1. The significance of the issue to residents of the Peace Country will be determined.

2. If policy changes are warranted, they will be developed in concert by all affected jurisdictions.

3. Any significant changes might not only complicate the land disposition process, but might also entail more government regulation on privately held lands.

4. Numerous small, fragmented parcels of Crown land in predominantly agricultural areas may create various land management and administrative problems.

6. OPENING AGRICULTURAL LANDS

Introduction

The following are prerequisites to the release of Crown lands in the Agriculture area of emphasis for agricultural purposes:

i) The suitability of individual parcels for agricultural development have been determined by means of a detailed soil survey.
ii) The lands have been legally surveyed.
iii) An access road has been provided.
iv) lands with 860 m3 (200 000 fbm) or more of merchantable coniferous timber have been liquidated.
v) There is no serious conflict with other resources on block openings (habitat, watershed, minerals, recreation, heritage).

In the case of grazing developments, the provision of access is not a prerequisite to issuing a disposition. Upon application, grazing permits may be issued on lands capable of till cropping, where those lands are not intended to be posted in the near future. Grazing leases, however, will only be issued on lands that detailed soil surveys have identified as not capable for till cropping.

Timber salvage will be co-ordinated with the posting of suitable lands and the development of access. It is expected that the loss of merchantable timber can be minimized by adherence to a phased development process. The AFS requires notification by June of any agricultural dispositions scheduled to take place the following year, in order to arrange for the sale and disposition of timber in the interim period.

Detailed soil surveys will likely be carried out by existing Public Lands personnel. At the time of survey, possible aggregate deposits will be noted. If aggregate is found in useful quantities, Alberta Transportation will be provided with the opportunity to place a reservation on the parcel.

Timing and Phasing

It is not feasible to establish a time frame for the releasing of all lands in the Agriculture area of emphasis at this juncture. The speed at which dispositions can take place is largely dependent on the availability of funding for surveys and the provision of access and drainage requirements. The following are the recommended phasing priorities, keyed to Figure 8 (p.125). Beyond Phase 2 or 3, the ordering of these priorities is rather tentative.

Phase 1: Releasing lands with adequate access which at present can be applied upon for dispositions leading to sale. Where such lands are now in the White Area, they may be applied upon immediately. Where they are now in the Green Area, the administrative area transfer must occur first. Generally, all lands within this phase should be released within one year of final plan approval.

Phase 2: Releasing lands adjoining existing settlement, but where no road network is presently in place. Contingent upon the availability of funding, all lands within this phase should be released within two years of final plan approval.

Phase 3: Releasing lands in the vicinity of Swan Lake and the northern portion of the Spring Creek area.

Phase 4: Developing a large scale improved grazing area in the Spring Creek area.

Phase 5 Releasing Agriculture area of emphasis lands in the Bridle Bit catchment area (see p. 41). Note: These lands cannot be a higher priority as the development of Phase 4 lands is a likely prerequisite to measurable changes in the hydrological regime of the Spring Creek Basin.

Phase 6: Releasing lands held under grazing disposition which are presently likely to remain in their present use for an unknown length of time (see Policy Recommendations, pp. 116-118).

Costs

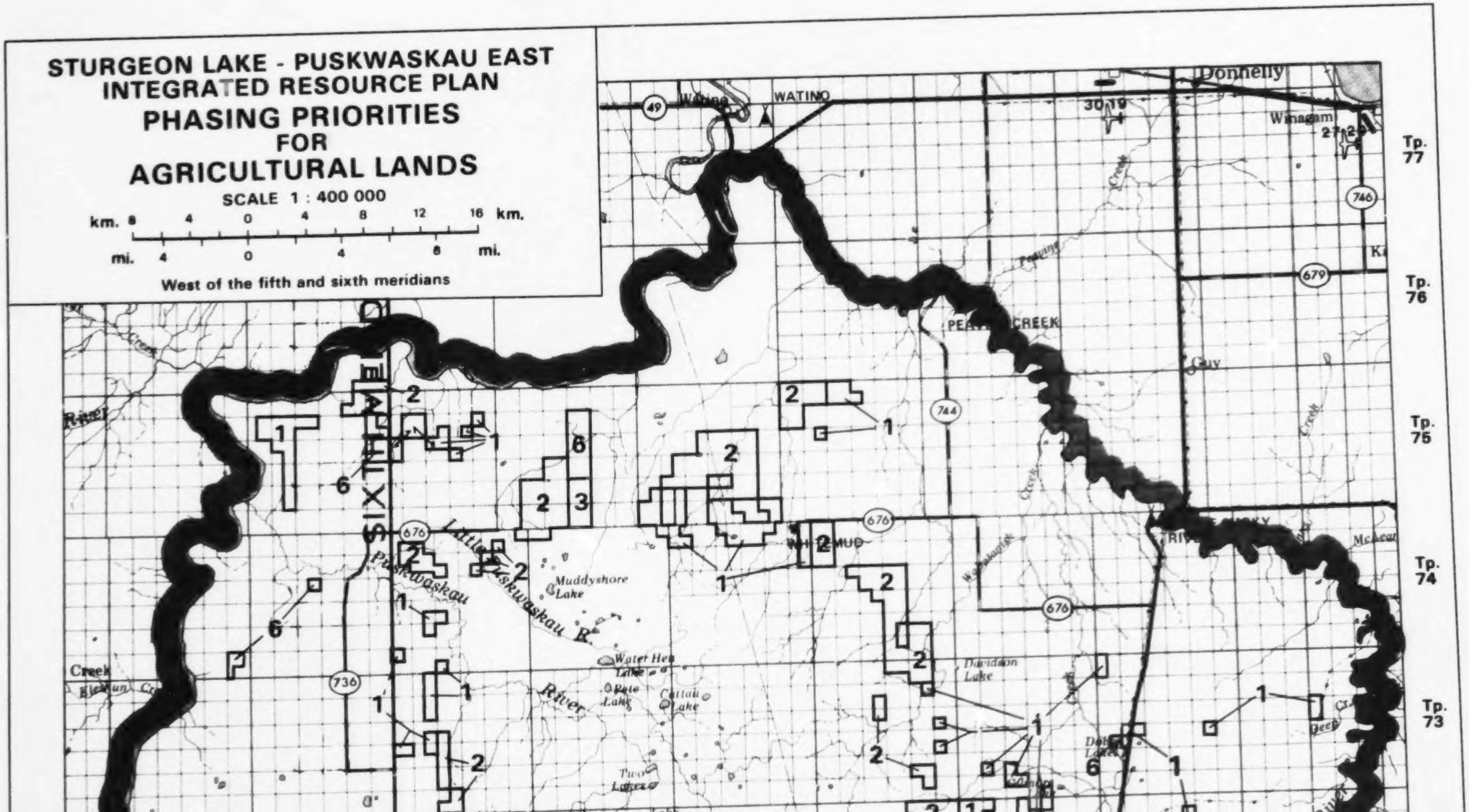
Accessing

1. Initial Trunk Road Construction

In order to service the Agriculture area of emphasis lands in a manner that will allow unit posting, between 75 and 100 miles (120-160 km) of new trunk road construction are required. For the higher figure, costs are estimated at $800 000 for clearing plus $8 million for grading, gravelling and bridge structures for an estimated total of about $9 million (1987 dollars). Normally this construction would be funded under the Roads to New Lands Program. As this program is limited in size, construction would take place over a number of seasons. The Roads to New Lands Program is funded by the province.

2. Additional Road Construction

Once lands become settled, additional road construction is invariably required to develop the road network completely. The following are commonly occurring situations:



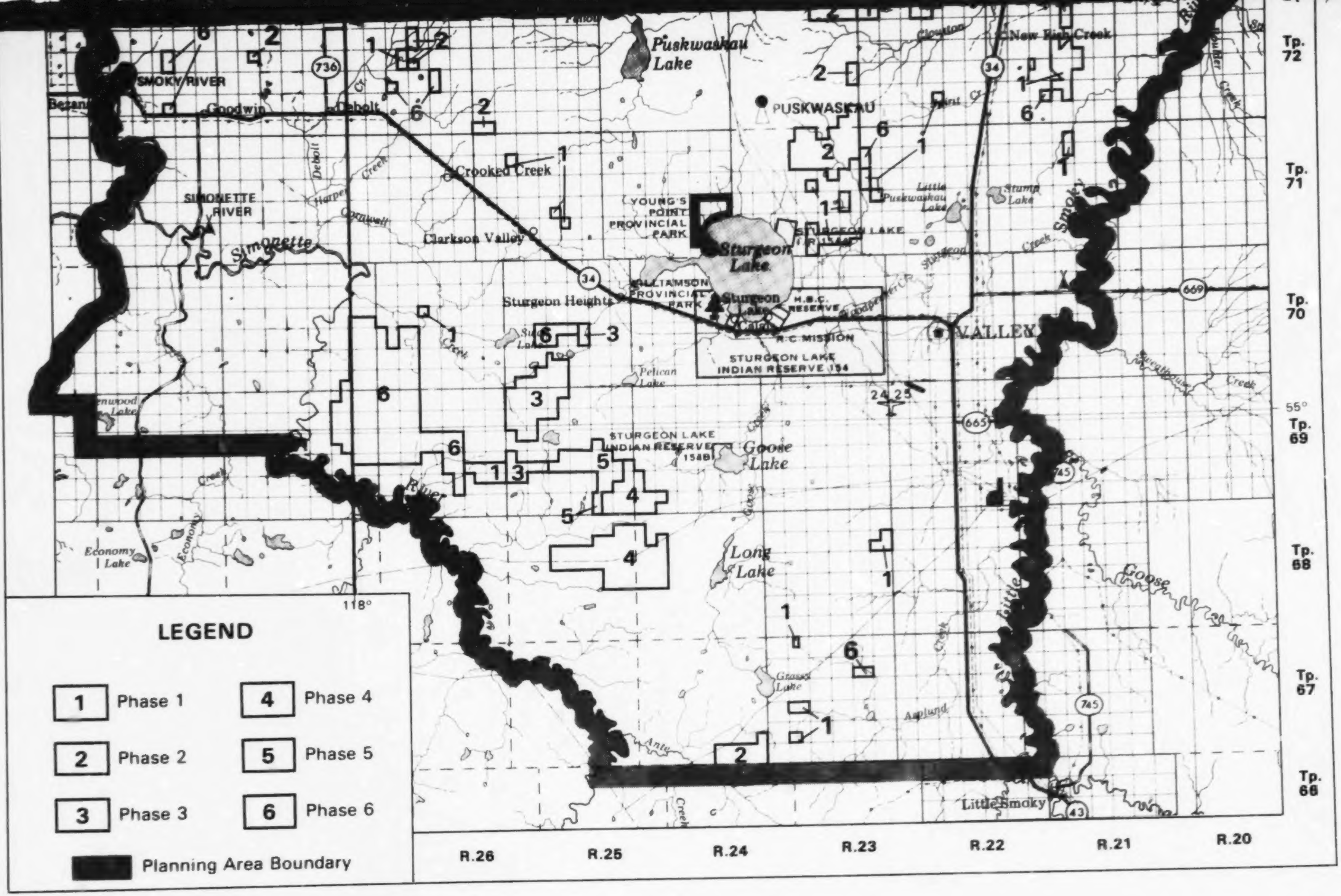
STURGEON LAKE - PUSKWASKAU EAST INTEGRATED RESOURCE PLAN

PHASING PRIORITIES FOR AGRICULTURAL LANDS

SCALE 1 : 400 000

West of the fifth and sixth meridians

km. 8 4 0 4 8 12 16 km.
mi. 4 0 4 8 mi.
Tp. 77
Tp. 76
Tp. 75
Tp. 74
Tp. 73
Donnelly
Winagami
WATINO
Watino
49
30 19
27 29
746
679
744
676
736
PEAVINE CREEK
Guy
Peavine Creek
Creek
WHITEMUD
RIVER
SMOKY
McLean
SIXTH
Little Puskwaskau R.
Puskwaskau
Muddyshore Lake
Water Hen Lake
Pete Lake
Cattail Lake
Two Lakes
River
Davidson Lake
Dollar Lake
Deep Cr.
Creek
Elephant Cr.
1
2
3
6
8



LEGEND
1 Phase 1
2 Phase 2
3 Phase 3
4 Phase 4
5 Phase 5
6 Phase 6
Planning Area Boundary
Tp. 72
Tp. 71
Tp. 70
Tp. 69
Tp. 68
Tp. 67
Tp. 66
55°
118°
R.26
R.25
R.24
R.23
R.22
R.21
R.20
Puskwaskau Lake
PUSKWASKAU
SMOKY RIVER
Goodwin
Debolt
Bezanson
Crooked Creek
SIMONETTE RIVER
Simonette
Clarkson Valley
YOUNG'S POINT PROVINCIAL PARK
Sturgeon Lake
WILLIAMSON PROVINCIAL PARK
Sturgeon Heights
STURGEON LAKE INDIAN RESERVE 154
STURGEON LAKE INDIAN RESERVE 154B
H.B.C. RESERVE
R.C. MISSION
Calais
VALLEYVIEW
Goose Lake
Long Lake
Grassy Lake
Pelican Lake
Little Puskwaskau Lake
Stump Lake
New Fish Creek
Economy Lake
Little Smoky
Smoky
Goose
Aspland
Sweathouse Creek
Woodpecker Cr.
24 25
34
736
669
665
745
43

Figure 8 PHASING PRIORITIES FOR AGRICULTURAL LANDS

-- The farmer will sell one of his back quarters and it then becomes necessary to provide access to it for the new owner. Frequently the new owner purchases for residential purposes and if the road becomes a school bus route as well, it then receives the highest consideration for road construction.

-- The landowner has difficulty getting to a back quarter section due to the presence of low areas, watercourses or small creeks which he has difficulty crossing.

-- Roads are constructed to link existing local roads which would then reduce travel distances for school buses, to town or between properties that the farmer owns.

Typically, this filling in of the road system would add another 50 per cent of the length of road required initially. In this case that would mean approximately 50 miles (80 km) with an estimated cost of $4.6 million (1987 dollars). Under the present situation, this would be entirely the responsibility of ID 16.

When situations requiring additional roads arise, construction requirements and costs will be greater than the above estimates unless much attention has been paid to the initial layout of the farming units and the trunk grid. This is because roads are typically constructed on road allowances and, if the improper initial layout is used, it could take one and a half miles (2.5 km) of road to serve the back quarter instead of half a mile (0.8 km). Also, should the farming unit include a small amount of land on the opposite side of a creek, in order to serve it an expensive crossing that would not be cost-effective would be required.

Landowner requests for additional road construction typically begin to occur three to five years after the initial settlement.

3. Spring Creek Access Link

In addition to the above figures, construction of an access road linking the Valleyview Grazing Reserve with the proposed large scale grazing area in Spring Creek (see Obj 4, p.78 and Gl 6, p.79) would require approximately 22 miles of new road with an estimated cost of $2.75 million (1987 dollars). The actual cost may be somewhat less if the route selection process determines the feasibility of aligning a portion of this road so as to provide trunk road access to new agricultural lands adjacent to the Spring Creek grazing area. A bridge across Goose Creek will cost an estimated $150 000.

4. Maintenance

Current average annual maintenance and regravelling costs are about $1440 a mile ($900/km. Accordingly, annual maintenance costs on up to 172 miles (275 km) of new road would be almost $250 000 (1987 dollars). This estimate does not include an allowance for future rebuilding and regrading (the life of a gravel road is about 20 years).

Drainage and Soil Erosion

Opening new lands which have surface-water drainage problems will result in demands from landowners for remedial work. Because of the size of the planning area, the variation in soil and surface drainage characteristics is considerable. Accordingly, drainage collection system requirements will vary greatly, from no requirement at all, to up to $115 an acre ($370/ha).

A very rough average drainage cost estimate is about $45 an acre ($110/ha), or approximately $4 000 000 for those lands in the Agriculture area of emphasis which are likely to be released for till cropping purposes.

According to present policy, these costs are split in a three-to-one ratio between the province and the local authority. Once the collection system is in place, the cost of moving water to it is borne by the farmer.

Soil erosion is a potential problem on steeper slope lands. Appropriate land management practices if diligently applied can mitigate most of the consequences to farmlands. The resulting higher peak flows from the farmlands, however, will increase the likelihood of erosion in roadside ditches which will act as the drainage system collectors. Measures required to prevent erosion in the road ditches are roughly estimated at about $10 000 a mile ($6250/km) of road affected. Up to 50 miles (80 km) of road may be involved.

Land Survey

Some of the lands placed in the Agriculture area of emphasis are at present unsurveyed.

Approximately 15 miles (24 km) require surveying at a 1987 dollar cost of about $1920 a linear mile ($1200/km), for a total cost of about $28 800.

7. PLAN MANAGEMENT

General administrative procedures and mechanisms required for plan implementation, monitoring and amendment are outlined in this section. Detailed program and project implications and associated benefits and costs incurred as a result of this plan will be contained in a supplemental implementation document (Peace River Regional Resource Management Committee, in prep.) that will complement the plan.

General Administration

The Sturgeon Lake-Puskwaskau East Sub-regional Integrated Resource Plan will be made operative within the terms of appropriate legislation, regular programs and activities of the government, operational plans, specific developed projects, referral processes and administrative bodies. The resource allocation scheme provides a means of processing applications for new public land dispositions within the planning area. Existing systems for referral and interdepartmental review will apply to the plan. Resources will continue to be administered by the departments responsible, in line with the approved zoning, resource management guidelines and any operational plans.

Participating government management agencies will have several responsibilities to ensure the effective delivery of this plan. It will be their responsibility to deal with any conflicts or concerns with respect to implementation or interpretation of any of the plan's provisions. These responsibilities are outlined by subject area below.

Referral Systems: Participating government management agencies will ensure that existing referral systems of the Alberta government (e.g., Alberta Energy and Natural Resources, 1980b, 1981b) are adequate to encompass all affected or concerned agencies.

Plan Monitoring: The Sturgeon Lake-Puskwaskau East Sub-regional Integrated Resource Plan will be reviewed annually by the Peace River Regional Resource Management Committee (RRMC) to:

-- assess the relevancy of the stated resource objectives in light of changing conditions;

-- assess the resource management guidelines and referral procedures;

-- assess agency operational plans to ensure their consistency with the RMA intents, objectives and guidelines; and

-- recommend amendments to the IRP and future actions required to maintain or promote government resource management activities in the planning area.

An annual report will document changes in the plan. The report will also highlight the previous year's activity in the planning area, including the number, type and location of referrals and what conflicts or concerns were addressed and resolved. The report will also indicate what might be expected to be accomplished in the planning area during the next year. The report may be deferred if it is not needed because of a lack of activity or progress on government resource management objectives within the planning area.

A major plan review by the Peace River RRMC will normally occur at five-year intervals to facilitate:

-- a comprehensive assessment of all aspects of the plan, including but not limited to broad resource management objectives, the resource allocation scheme, and RMA boundaries and intents;

-- a public review on an equivalent basis as the public has been involved in the development of this plan; and

-- a statement recommending amendments to the plan and future actions required to maintain or promote government resource management activities in the planning area.

A report will document all amendments. Major plan reviews may be undertaken more or less frequently than every five years if major resource policy commitments or developments of program initiatives require them.

Amendment Procedures: Major changes to the planning area boundary, broad planning area resource management objectives, the resource allocation scheme and associated conditions, and the resource management area boundaries and intents will require major amendment to the plan. An amendment to the plan may be required as a result of an annual review, major five-year review, government request or as a result of a request from an individual, group or organization outside the government. Proposed amendments to the plan from outside the government should be made by formal application to the Peace River Regional Resource Coordinator, Alberta Forestry, Lands and Wildlife[13]. Opportunities for public review of proposed amendments to the plan will be provided before changes are approved by the government. Amendments which entail a major policy decision or a change to the basic intent of the plan may be forwarded by the minister to cabinet committee for approval.

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[13] Guidelines for preparing requests for amendments to integrated resource plans will be made available upon request.

8. ABBREVIATIONS

AAC	Annual allowable cut
AFS	Alberta Forest Service (a division of Alberta Forestry, Lands and Wildlife)
AUM	Animal unit month
CTP	Commercial timber permit
Culture	Alberta Culture, Historical Resources Division
ELC	Ecological Land Classification and Evaluation report (ENR, 1983a)
ENR	The former Alberta Department of Energy and Natural Resources
F & W	Fish and Wildlife Division (of Alberta Forestry, Lands and Wildlife)
fbm	Foot board measure
FLW	Alberta Forestry, Lands and Wildlife
FMA	Forest management unit
Gl	Guideline
ID 16	Improvement District No. 16
LTP	Local timber permit
MD 130	Municipal District of Smoky River, No. 130
MO	Ministerial Order
Obj	Objective
OC	Order-in-Council
OHV	Off-highway vehicle
Public Lands	Public Lands Division (of Alberta Forestry, Lands and Wildlife)
REAP	Resource Evaluation and Planning Division (of Alberta Forestry, Lands and Wildlife)
RIC	Resource Integration Committee

RMA	Resource management area
RPB	Resource Planning Branch
RRMC	Peace River Regional Resource Management Committee
RSA	Revised Statutes of Alberta

9. GLOSSARY

Aeolian Deposits	Surficial deposits composed of materials which have been transported and laid down on the earth's surface by the wind.
Aggregate	Any loose unconsolidated surficial material, generally restricted to sand and gravel, but may include clays.
AAC (Annual Allowable Cut)	The total volume of timber that may be harvested in one year based on sustained yield.
Archaeological Resource	A work of man that is primarily of value for its prehistoric, historic, cultural or scientific significance, and is or was buried or partially buried in land in Alberta or submerged beneath the surface of any watercourse or permanent body of water in Alberta.
AUM (Animal Unit Month)	The grazing required (based on an average daily forage consumption of 26 lb or 12 kg) to support a 1000 lb (450 kg) cow, with or without an unweaned calf at side, or the equivalent, for one month.
Carrying Capacity (Range)	The maximum number of animals which can graze on a given range for a specific period of time, without inducing a downward trend in forage production, forage quality or soil.
Commercial Recreation Development	Recreation developments or enterprises undertaken by the private sector.
Control Measures	Means of regulating or restricting various resource uses to ensure compatibility with intent statements for areas of emphasis or RMAs. Examples include: permitting resource uses under stricter than normal guidelines and regulatins; permitting resource uses only in designated areas or at designated times; and restricting or prohibiting specific activities of any resource use.
Critical Habitat	Habitat that is crucial to the size, distribution or stability of a wildlife or fish population. Loss of such habitat would result in a drastic decline or extirpation of a population.

Crown Land	Public lands held by the Crown in right of Alberta.
CTP (Commercial Timber Permit)	A timber permit authorizing the cutting of coniferous timber where a surplus annual allowable cut exists in an FMU. Permits are short-term, normally one to three years in length.
Community Farm Woodlot	Reserves of Crown land within the White Area administered through the Grande Prairie Forest. They are set aside for the purpose of establishing a continuing supply of forest products for local community needs and are intended to be managed on a sustained yield basis. Dispositions are limited to small scale timber permits.
Depletion Cutting	The harvesting of merchantable timber on a one time basis prior to a land-use change. Also known as liquidation timber harvesting.
Disposition	Dispositions may be of a permanent nature, as through the sale of land, or temporary, when rights to particular lands or resources are granted for a finite period of time. The most common forms of disposition are by sale, lease, licence or permit.
ELC (Ecological Land Classification and Evaluation)	A subdivision and classification of the land surface into areas of similar environments. The methodology is based on an inventory and analysis of vegetation, soil, landform, parent material, and drainage characteristics. In the planning process, this information provides a background data base upon which capability evaluations of various resource uses can be made. The ELC document associated with this plan is entitled Ecological Land Classification and Evaluation - Sturgeon Lake Puskwaskau East Study Area.
Environmental Values	A value held by society toward any part or quality of the biological or natural physical environment which is perceived as meriting protection, preservation or retention.
Eutrophic	Water in which the production of organic matter is high as a consequence of a large supply of plant nutrients.

Extensive Recreation	Non-facility oriented recreation. Examples are cross-country skiing, hiking and trail biking.
FMA (Forest Management Agreement)	An agreement between the Province of Alberta and a forest products company granting the authority to cut timber. FMAs are contingent on the company agreeing to construct a large wood processing facility and to manage the holding by sound forest management principles approved by the AFS. FMAs are awarded by cabinet following public hearings on proposals by interested companies.
FMU (Forest Management Unit)	The forested region of the province is divided into 10 forests for administrative and management purposes. These forests in turn are divided into sub-units called FMUs which are managed as separate entities on a sustained-yield basis. FMUs are controlled by a management plan with includes such information as growing stock, allowable cuts, and a timber-harvest development program. FMUs are managed to allow periodic cutting of timber volumes on a sustained-yield basis.
G2, GO2 and GO4	Names given to FMUs by the AFS. The 'G' designation indicates the Grande Prairie Forest. 'G' folloswed by a number indicates Green Area lands, while the 'GO' designation denotes Crown lands "outside" the Green Area.
Green Area	Established in 1948 by order-in-council, it consists basically of the non-settled forest lands and covers about 50 per cent of the total area of the province. Public lands in the Green Area are managed primarily for forest production, watershed protection, fish and wildlife management, and recreation. Permanent settlement, except on legally subdivided lands, and agricultural uses other than grazing have been excluded.
Historic Resource	Any work of nature or of man that is primarily of value for its palaeontological, archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest including, but not limited to, a palaeontological, archaeological, prehistoric, historic or natural site, structure or object.

Historic Site	Any site which includes or comprises an historical resource of an immovable nature or which cannot be dissociated from its context without destroying some or all of its value as an historical resource and which includes a prehistoric, historic or natural site or structure.
Historical Resources Impact Assessment	Projects normally instituted in conjunction with development programs which are anticipated to cause ground-surface disturbance within the province of Alberta. The object of such projects is to locate all historical resource sites to be affected by the development program, to evaluate the worth of such sites relative to Alberta historical resources as a whole, to determine the nature of the impact of the development program on individual sites, and to propose conservation procedures for those sites to be affected by the development.
Important Habitat	Habitat not as essential to a wildlife or fish population as critical habitat, but still of some particular significance -- either because it supports a notably higher population than surrounding lands or because it has a high seasonal value.
Improved Grazing	Grazing lands which have had productivity enhanced by clearing and the establishment of tame forage stands and/or various range maintenance projects such as brush regrowth control, crossfencing and drainage.
Intensive Forest Management	Management of the forest resource to obtain a high level of timber volume per unit area through the application of the best techniques of silviculture and management.
Intensive Recreation	Facility-oriented recreation. Examples are campgrounds, boat launching facilities and day-use areas.
Intensive Recreation Developments	A moderate or high level of site and facility development, designed to cater to many recreation users. A supporting servicing infrastructure may be required.
Lacustrine Deposits	Material originating from lake sediments.

Large Scale Commercial Recreation/Tourism Development	Major capital intensive projects involving the construction of sizable facilities and used by large numbers of people. Examples would be hotels, marinas and holiday camps.
LTP (Local Timber Permit)	A timber permit issued normally to local residents authorizing the cutting of coniferous or deciduous timber for volumes up to a maximum of 750 m^3 coniferous or 1500 m^3 deciduous and expiring April 30 of any year.
M^3 (Cubic Metre)	A cubic metre is a metric unit of wood volume. It has a dimension of 1 m x 1 m x 1 m ($1\ m^3 =$ 233 fbm).
Morainal Deposits	Surficial geology composed of unsorted material of glacial origin. The composition varies, but is usually unstratified clay loaded with stones. Also called till and boulder clay.
MTU (Miscellaneous Timber Use)	Timber made available for use by local residents under local timber permits, which are issued without competition.
OHV (Off-Highway Vehicle)	A motorized vehicle used for cross-country travel on land, water or snow, including four-wheel-drive vehicles, motorcycles, track vehicles and snow vehicles, but not motor boats.
Operating Ground Rules	Standard ground rules employed by the AFS to guide the harvesting of timber. They are intended to both protect environmental quality and promote the growth of timber.
Organic Deposits	Surface deposits of material originating mainly from plants; in this region, primarily peat deposits.
Palaeontological Resource	A work of nature consisting of or containing evidence of extinct multicellular beings and including those works or classes of works of nature designated by the regulations as palaeontological resources.
Patent Land	Privately owned land.
Permanent Road	Any road that is structurally sound for all season access and that has a life expectancy of two years or more (AFS road classes I to IV; depending on the resource user, Class IV roads may be constructed to permanent or temporary standards.)

Planning Act (1977)	A statutory instrument detailing the means by which and the manner in which the planning for and development of lands shall be conducted in Alberta. Its purpose is to achieve the orderly, economical and beneficial development and use of land and patterns of human settlement consistent with the maintenance and improvement of the quality of the physical environment. The Crown is not bound by the Planning Act, but occupants of Crown land, other than the Crown, are. Accordingly, development permits for private developments falling within the purview of the act must be issued by the appropriate mandated local authority.
Primitive Recreation Developments	Facilities having a minimum level of site development, such as a campground with limited access (foot or boat only), and only basic facilities (pit toilets, well for water, possibly a simple cook shelter, unimproved campsites).
Provisional Reserve	A tract of timbered land set aside for a particular company for a specified period of time. If the company meets certain obligations, timber rights will then be issued under FMA.
Public Recreation Development	Recreation developments or programs undertaken by any level of government or any government agency or agencies and including any private sector contractual developments commissioned by a government.
Puskwaskau Highlands	The largest single block of Crown land in the planning area -- broadly contiguous with the G2 FMU. Also referred to as the Puskwaskau Hills, this area is located north of Sturgeon Lake in the north-central portion of the planning area.
Quota	Quotas convey coniferous timber rights expressed as a percentage share of the annual allowable cut for a given FMU. Quotas are used to allocate commercial quantities of timber within specified areas to individual companies and have a 20-year term.
Reclamation	Post-disturbance modification of the landscape to a desired state. This usually entails maintaining a productive and balanced ecological state that is resistant to environmental deterioration and is consistent with aesthetic values.

Regeneration	Lands stocked to coniferous trees in sufficient numbers to produce a commercial harvest at maturity.
Resource	Any part of the environment which society perceives as having value.
RIC (Resource Integration Committee)	An interdepartmental committee of head office directors responsible for supervising and monitoring the integrated resource planning program.
Riparian Lands	Lands on the banks of, or adjacent to, rivers or lakes.
RRMC (Regional Resource Management Committee)	A group of regional directors representing the various Forestry divisions and including representatives from other agencies on an as-needs basis. Responsible for co-ordinating agency mandates in the region, reviewing planning documents and implementing IRPs.
Small Scale Commercial Recreation/Tourism Development	Minor operations requiring modest financing, involving minimal construction and catering to limited numbers of people. Examples would be outfitting, guiding and river rafting operations.
Sustained-Yield Timber Management	The balancing of timber growth and harvesting production to ensure continued forest productivity at a given level of management without impairing the productivity of the land.
Temporary Industrial Access	Any industrial road intended to provide access during dry or frozen periods, which has a maximum design speed of 40 km/hr, a maximum clearing width of 20 m, ditches for erosion control purposes only where required, and a normal life expectancy of two years or less (AFS road classes IV and V; depending on the resource user, Class IV roads may be constructed to permanent or temporary standards).
Till Cropping Capability	Lands with a generalized site index of 24 or more according to the Soil Rating Schedule (a modified Storrie system) used by the Public Lands Division.
Tourism	Tourism is the actual travelling, as well as the activities participated in and services used, by any individual beyond a 80 km (50 miles) radius from home for any purpose except daily commuting

	to and from work. This includes both Albertans and non-residents. It is recognized that elements of tourism are often involved when people travel for business purposes.
Tourism Attraction	An attraction is a physical feature of interest or significance which can either be natural or man-made. There may or may not be facilities constructed in conjunction with it to increase the enjoyment by visitors. The attraction can be of international, national, provincial, regional or local significance depending upon degree of market appeal.
Tourism Facility	A facility is a development whose primary purpose is to offer a particular service or recreational activity opportunity to the tourist. Services may include accommodation, food, beverage or automotive services, or providing tourist information, while recreation opportunities can range from ski development to tennis courts, from a marina to a lodge facility.
Ungulates	Hoofed animals. The following ungulates occur in the planning area: elk, moose, mule deer and whitetail deer.
White Area	Established in 1948 by order-in-council. It consists of that portion of the province where the emphasis is on settlement and agricultural uses. Lands not required for conservation, recreation, wildlife or forestry purposes may be applied for pursuant to the Public Lands Act and other regulations.
Yellow Area	Name used for lands with a settlement and agricultural empahsis in the Peace Country up until May 1985. Allowing homesteading distinguished the Yellow Area from the White Area, but when this practice ceased in 1984 so did the need for a separate designation. Now called the White Area.

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APPENDIX 1

Table of Lands Affected by Green/White Area Boundary Changes

A) Area South of Highway 34

1. Rezone Following Lands from Outside ("O") Green to White Area:

   a) Twp 67-24-W5; all of Sec's 1 and 2: E 1/2 Sec 3; SE Sec 12;

   b) Twp 68-24-W5; W 1/2 Sec 17; all of Sec's 18, 19; W 1/2 Sec 20; W 1/2 Sec 29; all of Sec's 30, 31; W 1/2 Sec 32;

   c) Twp 68-25-W5; all of Sec 13; E 1/2 Sec 14; N 1/2 Sec 19; N 1/2 Sec 20; all of Sec 21-36 inclusive;

   d) Twp 68-26-W5; that portion of NE Sec 23 which lies to the east of the Simonette River; N 1/2 Sec 24; all of Sec 25; that portion of Sec's 26, 27, & NE Sec 28 which lies to the north of the Simonette River; that portion of Sec's 33, 34 which lies to the east of the Simonette River; all of Sec 35, 36;

   e) Twp 69-24-W5; all of Sec 6; SW Sec 7;

   f) Twp 69-25-W5; all of Sec's 1-12 inclusive; W 1/2 Sec 13; all of Sec's 14-21 inclusive; S 1/2 Sec 22; SW Sec 23; W 1/2 Sec 28; all of Sec's 29, 30, 31, 32, 33;

   g) Twp 69-26-W5; all of Sec's 1, 2, 3: that portion of Sec 4 which lies to the east of the Simonette River; that portion of Sec's 5, 6, 7, 8 which lies to the north of the Simonette River; all of Sec's 9, 10, 11, 12; S 1/2 Sec 13; S 1/2 Sec 14; all of Sec's 15-22 inclusive; all of Sec's 30, 31;

   h) Twp 69-27-W5; that portion of the NE Sec 1 & all of Sec 12 which lies to the north of the Simonette River; all of Sec 13, 24, 25, 36; all those portions of NE Sec 11 & all of Sec 14 which lies to the north of the Simonette River and to the east of the sixth Meridian; all of those portions of Sec's 23, 26, 35 lying to the east of the sixth Meridian;

   i) Twp 69-1-W6; that portion of Sec's 11, 12, 13, 14, 15, 16 which lies to the north of the Simonette River; that portion of Sec 21, 22 which lies to the east of the Simonette River; all of Sec's 23, 24, 25; that portion of Sec 26, 27, 34, 35 which lies to the east of the Simonette River; all of Sec 36;

   j) Twp 70-25-W5; W 1/2 Sec 3; all of Sec's 4-9 inclusive; W 1/2 and SE Sec 10; W 1/2 Sec 15; all of Sec's 16, 17, 18;

k) Twp 70-27-W5; all of Sec's 1, 12, 13, 24, 25; all those portions of Sec's 2, 11, 14, 23 lying to the east of the sixth Meridian; all those portions of Sec 26, 35 lying to the east of the Simonette River and to the east of the sixth Meridian; that portion of Sec 36 which lies to the east of the Simonette River;

l) Twp 70-1-W6; all of Sec 1; that portion of Sec 2, 11 which lies to the east of the Simonette River; all of Sec 12, 13; that portion of Sec 14, 23, 24, 25 & SE 36 which lies to the east of the Simonette River; that portion of Sec 31, 32 & NE 36 which lies to the north of the Simonette River;

m) Twp 70-2-W6; that portion of NW Sec 36 which lies to the west of the Simonette River; that portion of the NE Sec 35 which lies to the east of the Simonette River.

2. Rezone Following Lands from Outside ("O") Green to Green Area:

a) Twp 67-24-W5; W 1/2 Sec 3; all of Sec 4, 5, 8, 9, 10, 11; N 1/2 & SW Sec 12; all of Sec 13-26 inclusive;

b) Twp 67-25-W5; that portion of Sec 22 which lies to the east of the Simonette River; all of Sec's 23-27 inclusive; that portion of Sec 28, 29, 31, 32, 33 which lies to the north of the Simonette River; all of Sec's 34, 35, 36;

c) Twp 67-26-W5; that portion of NE Sec 35 & all of Sec 36 which lies to the north of the Simonette River;

d) Twp 68-24-W5; all of Sec's 1-16 inclusive; W 1/2 of Sec 17 and W 1/2 Sec 20; Sec's 21-28 inclusive; W 1/2 29 and W 1/2 32; Sec's 33-36;

e) Twp 68-25-W5; all of Sec's 1-12 and 15-18 inclusive; W 1/2 14, S 1/2 19 and S 1/2 20.

f) Twp 68-26-W5; all of Sec 1, 12, 13, S 1/2 24; that portion of Sec 2, 11, 14, SE 23 which lies to the east of the Simonette River;

g) Twp 69-24-W5; all of Sec's 1-5 and 8-36 inclusive; N 1/2 and SE 7;

h) Twp 69-25-W5; all of Sec's 24-27 and 34-36 inclusive; E 1/2 13, N 1/2 22, N 1/2 and SE 23, E 1/2 28;

i) Twp 69-1-W6; that portion of NE Sec 22 which lies to the north of the Simonette River; that portion of Sec 26, 27, 28 which lies to the west of the Simonette River; all of Sec's 29-33 inclusive; that portion of Sec 34, & W 1/2 Sec 35 which lies to the west of the Simonette River;

j) Twp 69-2-W6; all of Sec's 25-36 inclusive;

k) Twp 70-24-W5; all of Sec's 4, 5, 6, 7, 8, 9, 16, 17, 18;

l) Twp 70-25-W5; all of Sec's 1, 2, 11, 12, 13, 14; E 1/2 3, NE 10, E 1/2 15;

m) Twp 70-27-W5; all those portions of Sec 26, 35 lying to the west of the Simonette River and to the east of the sixth Meridian; that portion of Sec 36 which lies to the west of the Simonette River;

n) Twp 70-1-W6; all those portions of Twp 70-1-W6 lying to the west of the Simonette River, excluding that portion of N 1/2 Sec 31 & NE Sec 36 which lies to the north of the Simonette River;

o) Twp 70-2-W6; all those portions of Twp 70-2-W6 lying to the south of the Simonette River and to the east of the Smoky River.

p) Twp 70-3-W6; all those portions of Twp 70-3-W6 lying to the east of the Smoky River.

3. Rezone Following Lands from White Area to Green Area:

a) Twp 67-23-W5; W 1/2 Sec 19;

b) Twp 68-23-W5; all of Sec 18, 19;

c) Twp 69-23-W5; N 1/2 Sec 7, NW Sec 8, SW Sec 17, all of Sec 18, 19;

d) Twp 70-25-W5; SE Sec 22, S 1/2 Sec 23;

e) Twp 71-1-W6; that portion of Sec's 1, 2, 3, 4, 5 which lies to the south of the Simonette River;

f) Twp 71-2-W6; all those portions of Twp 71-2-W6 lying to the south and west of the Simonette River and to the east of the Smoky River.

B) Area North of Highway 34

1. Rezone Following Lands from Outside ("O") Green to White Area: Twp 74-25-W5; N 1/2 Sec 31;

2. Rezone Following Lands from Outside ("O") Green to Permanent Green Area:

a) Twp 74-25-W5; all of Sec's 7, 18, 19, 20, 29, 30, 32; S 1/2 Sec 31;

b) Twp 74-26-W5; all of Sec 1, 2; E 1/2 Sec 12; E 1/2 Sec 13;

3. Rezone Following Lands from Green Area to White Area:

   a) Twp 71-25-W5; W 1/2 Sec 11; E 1/2 Sec 29;

   b) Twp 72-23-W5; E 1/2 of Sec 34; all of Sec 35;

   c) Twp 72-25-W5; S 1/2 Sec 6;

   d) Twp 72-26-W5; SW Sec 22, W 1/2 Sec 27;

   e) Twp 73-23-W5; NE Sec 2; S 1/2 Sec 11; NE Sec 21; SE Sec 28; N 1/2 Sec 34; all of Sec 35;

   f) Twp 73-26-W5; all of Sec 4; W 1/2 Sec 9; W 1/2 Sec 16; SW Sec 21;

   g) Twp 74-23-W5; all of Sec 2, 3; S 1/2 Sec 11; all of Sec 10, 15; NE Sec 16; NE Sec 20; all of Sec 21, 22, 30, 31;

   h) Twp 74-25-W5; NE Sec 36;

   i) Twp 75-23-W5; all of Sec's 30, 31, 32;

   j) Twp 75-25-W5; NW Sec 2; all of Sec's 3, 4, 5, 8, 9, 10; all of Sec's 15, 16, 22; N 1/2 Sec 31; N 1/2 Sec 32; N 1/2 Sec 33;

   k) Twp 75-26-W5; that portion of Sec 20 which lies east of the sixth Meridian; NW Sec 23; NW Sec 25; all of Sec 26; N 1/2 & SW Sec 27; all of Sec 28; that portion of Sec 29, 32 which lies east of the sixth Meridian; all of Sec's 33, 34, 35, 36;

   l) Twp 75-1-W6; SE Sec 24; N 1/2 Sec 25;

   m) Twp 76-25-W5; that portion of Sec's 4, 5, 6 which lies to the South of the Smoky River;

   n) Twp 76-26-W5; all of those portions of Twp 76-26-W5 lying to the south of the Smoky River;

   o) Twp 76-1-W6; all of Sec 1; SE Sec 2; SE Sec 12.

4. Rezone Following Lands from White Area to Green Area:

   a) Twp 71-23-W5; that portion of Sec 7 and NW Sec 8 which lies to the north of Sturgeon Lake; W 1/2 Sec 17, all of Sec 18, 19; W 1/2 Sec 20; NW Sec 35;

   b) Twp 71-24-W5; W 1/2 Sec 15; all of Sec 16, 21, 22 and 24;

   c) Twp 71-26-W5; SE Sec 36;

d) Twp 72-22-W5; W 1/2 Sec 19;

e) Twp 72-23-W5; NW Sec 1; all of Sec's 2, 11, 12; W 1/2 Sec 13; all of Sec 24, 25;

f) Twp 72-26-W5; N 1/2 Sec 12; all of Sec 13; E 1/2 Sec 14;

g) Twp 73-26-W5; NE Sec 20; all of Sec 33, N 1/2 and SW 28;

h) Twp 74-26-W5; all of Sec 3; SE, NE and NW Sec 4; all of Sec 9, 10, 11; W 1/2 Sec 12; W 1/2 Sec 13; all of Sec 14, 15; N 1/2 & SE Sec 16; NE Sec 17; all of Sec's 20-25 inclusive; S 1/2 & NE Sec 26; SW Sec 27; SE Sec 28; all of LSD 1, 2, 3, 4 of Sec 29; S 1/2 Sec 36;

i) Twp 75-24-W5; N 1/2 & SW Sec 7; all of Sec 18; W 1/2 Sec 17; W 1/2 Sec 21;

j) Twp 75-25-W5; S 1/2 Sec 34; S 1/2 Sec 35;

k) Twp 76-23-W5; all of Sec 4, 10; NW Sec 11; all of Sec 15; that portion of Sec 22 that lies to the south of the Little Smoky River;

l) Twp 77-23-W5; all that portion of SW 18 which lies to the west of the Little Smoky River;

m) Twp 77-24-W5; all those portions of Sec's 13 and 14 which lie to the south of the Little Smoky River; all that portion of Sec 15 which lies to the East of the Smoky and the Little Smoky Rivers.

APPENDIX 2

Table of Lands Designated as Community Farm Woodlots (White Area) to be Reserved under Indefinite Timber Reservations for Sustained-Yield Management.

1. Lands requiring an Indefinite Timber Reservation:

   a) Twp 67-21-W5; that portion of W 1/2 Sec 6 which lies to the west of the Little Smoky River;

   b) Twp 67-22-W5; all of Sec 1; E 1/2 Sec 2;

   c) Twp 68-23-W5; NW Sec 25; all of Sec 26, 27;

   d) Twp 70-23-W5; N 1/2 Sec 27; all of Sec 33, 34; N 1/2 & SW Sec 35;

   e) Twp 71-22-W5; NE Sec 20; N 1/2 & SE Sec 21; S 1/2 & NW Sec 28; E 1/2 Sec 29; SW Sec 33;

   f) Twp 71-23-W5; S 1/2 & LSD 9 & 10 of Sec 1; S 1/2 Sec 2;

   g) Twp 75-1-W6; that portion of Sec 32, 33 which lies to the south of the Smoky River.

MAPS
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